JVC

SERVICE MANUAL

MODEL
MF-55LS
3 IN 1 MUSIC SYSTEM

No. 2382
November 1976

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Specifications

Cassette Deck Section

Type	:	Stereo cassette deck with fully automatic stop with ANRS and Super ANRS
Track system	:	4-track, 2-channel stereo
Bias & erase	:	AC bias and AC erase
Heads	:	Chronios head for Record/Play Ferrite head for erase
Wow and flutter	:	0.15% (WRMS)
Frequency response	:	(Normal) 50–13000 Hz (Chrome) 40–15000 Hz
S/N ratio	:	52 dB, improved by 5 dB at 1 kHz and 10 dB at 5 kHz or more with ANRS and Super ANRS

Tuner Section

Type	:	FM – FET selective RF amplifier front-end and Quadrature detector with PLL IC multiplex tuner AM – Separated and independent local oscillator system 3-band (LW/MW/SW) tuner
Tuning range & sensitivity	:	FM 88–108 MHz SW 6–18 MHz MW 525–1600 kHz LW 150–350 kHz
Stereo separation	:	35 dB

Power Amplifier Section

Type	:	IC power amplifier with bass and treble controls providing two speaker output terminals per channel
Continuous power	:	25 watts RMS per channel at 4 ohms

Turntable Section

Type	:	Belt drive with auto-return mechanism and cueing
Speeds	:	33-1/3, 45 rpm
Turntable	:	300 mm (12 in)
Cartridge	:	Moving magnet employing diamond stylus
Tone arm	:	Detachable head shell and adjustable counter weight
Motor	:	DC motor with rotation to frequency servo control system

General

Power source	:	110 V, 130 V, 220 V, 240 V 50/60 Hz
Dimensions	:	150(H) x 700(W) x 380(D) mm (5-7/8"(H) x 27-9/16"(W) x 14-15/16"(D)
Weight	:	16 kg (35.21 lbs)

Cautions for Safety Assurance at the Service

In order to prevent from accidents, like fire or shock hazard, please keep the following points for the safety.

1. Make sure to use ⚠ parts when replace the ⚠ marked parts in the parts list of this manual.
2. Though when replace no marked parts, it is recommended to use the parts listed in this manual to keep appliance safe and reliable.
3. The symbol mark ⊣WWW⊢ is showing a fusible resistor and use the listed parts.
4. The wiring with solder should be made as to wind the wire around the terminal a half or more to prevent easy disconnection.
5. After repair, keep enough distance between every electrodes and the chassis (metal parts) or terminals.

JVC

SERVICE MANUAL

MODEL

MF-55LS MARK II

3 IN 1 MUSIC SYSTEM

No. 2382-2
June 1978

This manual should be added and partly changed to the service manual (No. 2382) of the MF-55LS. Others should be referred to that one.

Specifications

Cassette deck

Type	: Stereo cassette deck with fully automatic stop with ANRS and Super ANRS
Track system	: 4-track, 2-channel stereo
Bias & Erase	: AC bias and AC erase
Heads	: Cronios head for Record/Play Ferrite head for erase
Frequency response	: (Normal) 30–13,000 Hz (Chrome) 30–15,000 Hz
Wow and flutter	: 0.15% (WRMS)
S/N ratio	: 52 dB, improved by 5 dB at 1 kHz and 10 dB at 5 kHz or more with ANRS and Super ANRS

Tuner

Type	: 4-band (FM/LW/MW/SW) FM stereo tuner with PLL IC Multiplex
Tuning range	: FM 88–108 MHz LW 150–350 kHz MW 520–1600 kHz SW 6–18 MHz
Stereo separation	: 40 dB

Amplifier

Type	: IC power amplifier with bass and treble controls
Continuous power	: 30 watts RMS per channel at 4 ohms (0.7% T.H.D.)

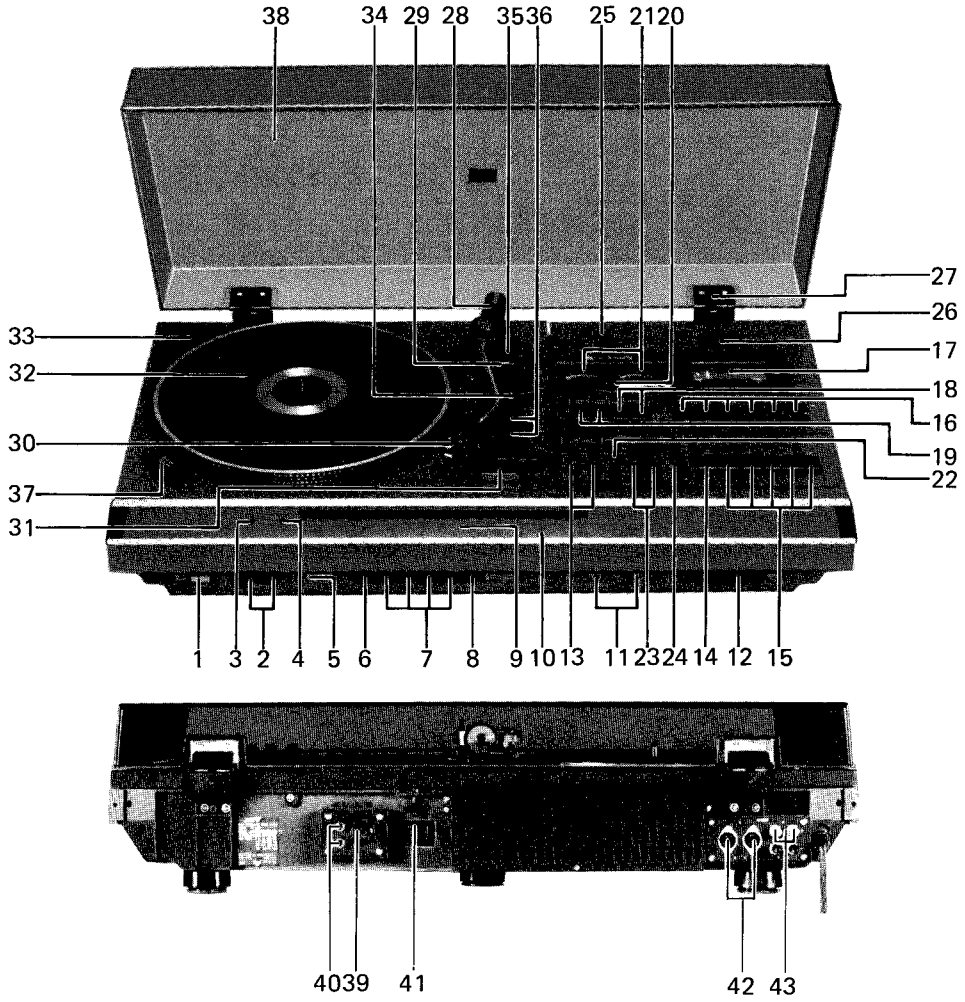
Turntable

Type	: Belt drive turntable with auto return mechanism and cueing
Speeds	: 33-1/3, 45 rpm
Turntable	: 300 mm (12 in)
Motor	: FG servo
Cartridge	: Moving magnet type

General

Power source	: 110 V, 120 V, 220 V, 240 V, 50/60 Hz or 240 V, 50/60 Hz
Dimensions	: 150(H) x 700(W) x 380(D) mm (5-7/8"(H) x 27-9/16"(W) x 14-15/16"(D))
Weight	: 14 kg (30.8 lbs)

The Name of External Parts



1. Power switch (POWER)
2. SPEAKER selector switches (A-B)
3. Radio indicator (RADIO)
4. FM stereo indicator (FM STEREO RADAR)
5. Headphone jack (PHONES)
6. FM muting switch (FM MUTING)
7. Radio band selectors (FM/LW/MW/SW)
8. SW sensitivity selector/FM mode switch (SW SENS./FM MODE)
9. Illuminated dial pointer
10. FM/LW/MW/SW tuning dial
11. Microphone jacks (MIC, LEFT-RIGHT)
12. Tuning knob (TUNING)
13. Recording level controls (REC LEVEL, LEFT and RIGHT)
14. Loudness switch (LOUDNESS)
15. Source selection buttons (SOURCE SELECT – RADIO, PHONO, MIC, CASSETTE, AUX)
16. Cassette operation buttons (REWIND, REC, PLAY/REC, FF, STOP/EJECT, PAUSE)
17. Cassette holder
18. TAPE SELECT buttons (EQUALIZER, BIAS)
19. NOISE REDUCTION buttons (ANRS, Super ANRS)
20. RECORDING INDICATOR
21. REC LEVEL meters (LEFT/RIGHT-TUNING)
22. BALANCE control
23. TONE control (BASS, TREBLE)
24. VOLUME control
25. BEAT CUT switch
26. TAPE COUNTER/Counter reset button
27. Free-stop cover hinge
28. Counterweight with stylus pressure dial scale
29. Cue lever
30. Head-shell
31. REJECT lever
32. Turntable
33. EP adapter
34. Speed selector switches (33, 45)
35. Anti-skating knob
36. Speed adjustment knobs
37. Stroboscope indicator
38. Dust cover
39. REC/PB jack
40. Auxiliary input terminals (AUX IN)
41. ANTENNA terminals
42. Speaker DIN terminals (SPEAKER SYSTEM A)
43. Speaker screw terminals (SPEAKER SYSTEM B)

Circuit Board Parts

Page	Ref. No.	Parts No.		Parts Name	Q'ty
		Original	Changed or Added		
(Tuner Parts List)					
18	FM RF section				
"	C194	—	QCS11HK-120	Fixed C. Capacitor	1
18	FM IF section				
"	CF101	E03609-001	SFJ10.7MA2	Ceramic Filter	1
"	C112	QEB41EM-105	QEB41EM-475	E. Capacitor	1
"	C195	—	QEB41EM-105	"	1
"	R112	QRG016J-151	QRD121J-271	C. Resistor	1
"	R195	—	QRD181J-472	"	1
18	AM RF section				
"	C118	QCS11HJ-330	QCS11HJ-270	Fixed C. Capacitor	1
"	C184	" -5R0	" -8R0	"	1
"	R134	QRD181J-333	QRD181J-223	C. Resistor	1
"	R114	" -222	" -102	"	1
"	R186	" -470	" -101	"	1
19	AM IF section				
"	R154	QRD181J-103	QRD181J-822	C. Resistor	1
"	R155	" -222	" -182	"	1
"	R183	QRD181J-104	" -274	"	1
"	R194	—	" -224	"	1
20	MPX section				
"	C168	QEB41EM-105	QEB41EM-335	E. Capacitor	1
"	C177, 178	QFM41HJ-682	QFM41HJ-562	M. Capacitor	2
"	C171, 172	" -182	" -102	"	2
"	C195, 196	—	QCS11HJ-561	Fixed C. Capacitor	2
"	R169, 170	QRD181J-682	QRD181J-562	C. Resistor	2
"	R163	QRG016J-221	" -391	"	1
"	R176	" -561	QRG016J-821	O.M.F. Resistor	1
"	R175	QRZ0040-470	" -221	"	1
"	R177	QRG016J-391	QRD181J-821	C. Resistor	1
"	L109, 110	—	TAC000324-05	Inductor	
(Power Parts List)					
22		YHY20015-001	YH2003-222	Circuit Board	1
"		YHY20015-001A	YH2003-1	"	
"		YMG30042-002	YMG30042-003	Fuse Holder	8
"	X4, 5	—	2SC2363F	Si. Transistor	2
"	X6, 7	—	2SC458D	"	2
"	X8	—	2SA836E	"	1
"	X9	—	2SC1345DE	"	1
"	D11	WZ-157	RD5.6EB3	Diode	1
"	D12, 13, 14, 15	—	1S2075K	Si. Diode	4
"	C1, 2	QEB41EM-224	QEB51EM-474	E. Capacitor	2
"	C5, 6	QFM41HK-473	QFM31HJ-104	M. Capacitor	2
"	C7, 8	QEW41EA-227	QEW61EA-107	E. Capacitor	2
"	C9, 10	QEW41VA-477	" -107	"	2
"	C29, 30	QCS11HK-101	QCS31HJ-221	Fixed C. Capacitor	2
"	C39	—	QEB51EM-224	E. Capacitor	1

Page	Ref. No.	Parts No.		Parts Name	Q'ty
		Original	Changed or Added		
22	(Power Parts List)				
"	C40	—	QEW61EA-335	E. Capacitor	1
"	C41, 42	—	QCS31HJ-8R0	Fixed C. Capacitor	2
"	R17	QRX016J-100	QRD142J-102	C. Resistor	1
"	R18	QRD181J-330	" -102	"	1
"	R24, 32	—	" -332	"	2
"	R25	—	" -821	"	1
"	R28	—	" -272	"	1
"	R27, 30	—	" -392	"	2
"	R29, 33, 34	—	" -472	"	3
"	R31	—	" -561	"	1
	(Control Parts List)				
28	X407, 408	2SC1327U	2SC1345DE	Si. Transistor	2
"	X409, 410	—	2SC828A-ST	"	2
"	D401—404	—	1S2473	Si. Diode	4
"	C401, 402	QFM41HJ-682	QFM41HJ-562	M. Capacitor	2
"	C403, 404	" -273	QFM41HJ-223	"	
"	C405, 406	QCS11HJ-101	QCS11HK-390	Fixed C. Capacitor	2
"	C475, 476	—	QCS11HJ-101	"	2
"	C487, 488	—	QEW41CA-106	E. Capacitor	2
"	R405, 406	QRD181J-124	QRD181J-683	C. Resistor	2
"	R465, 466	" -824	" -564	"	2
"	R475, 476	QRZ0040-470	QRG016J-331	O.M.F. Resistor	2
29	R421, 422, 423, 424	QRD181J-102	QRD181J-151	C. Resistor	4
"	R415, 416	" -821	" -561	"	2
"	R489	—	" -223	"	1
"	R490	—	" -331	"	1
"	R491	—	" -474	"	1

Others Parts

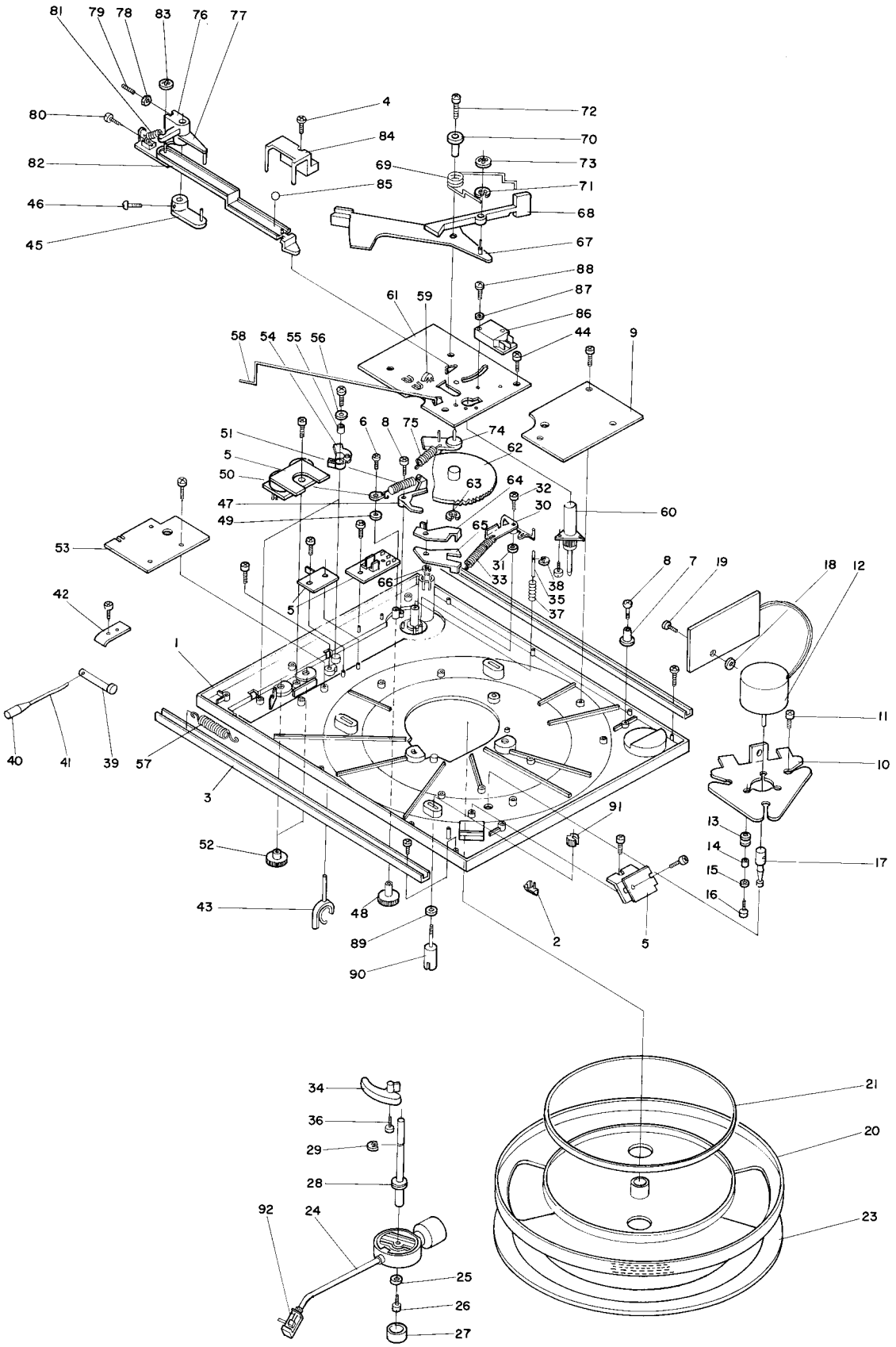
Page	Ref. No.	Parts No.		Parts Name	Q'ty
		Original	Changed or Added		
	(Main Parts List)				
32	7	YUD10027-001	Y10091-001	Dial Scale	1
"	21	YOU10025-001	YOU10025-003	Bottom Case	1
"	65	YXQ40190-001	Y40620-001	Switch Cover	1
"	67	YTP30096-001	Y00109-001	Power Transformer	1
"	73	Y40239-001	Y40624-001	Shield Cover	1
"	83	YXZ30095-001	Y40478-002	Blind	1
33	110	YOB20012-002	YOB20012-004	Control Panel	1
"	127	YOT10029-002	YOT10029-003	Dust Cover	1
"	139	YXN30046-011	YXN30046-024	Name Plate	1
"	143	YDK30011-005	YDK30011-038	Instruction Book	1
	(Cassette Unit Parts List)				
34	1	YOB10012-002	YOB10012-004	Cassette Panel	1

Speed Control Ass'y

The mark * means new parts.

Ref. No.	Parts No.	Parts Name	Remarks	Q'ty
	*YH4001-122	Circuit Board		
	*YH4001-1	Vol. C.B. Ass'y		
VR601, 602	*Y00134-001	V. Resistor		2
	*YH4001-2	L.E.D. C.B. Ass'y		
X601	2SD467C	Si. Transistor		1
R601–604	QRD142J-271S	C. Resistor		4
R605	" -562S	"		1
D605	1S2075K	Si. Diode		1
	*YH4001-3	Speed Sel. C.B. Ass'y		
S601	*Y00135-001	Dip Switch		1
	*YH4001-4	Plug C.B. Ass'y		
P601	Y30221-004	Plug Ass'y		1
P602	Y30221-003	"		1
D601–604	*SLP137B	L.E.D.		4

Record Player Parts



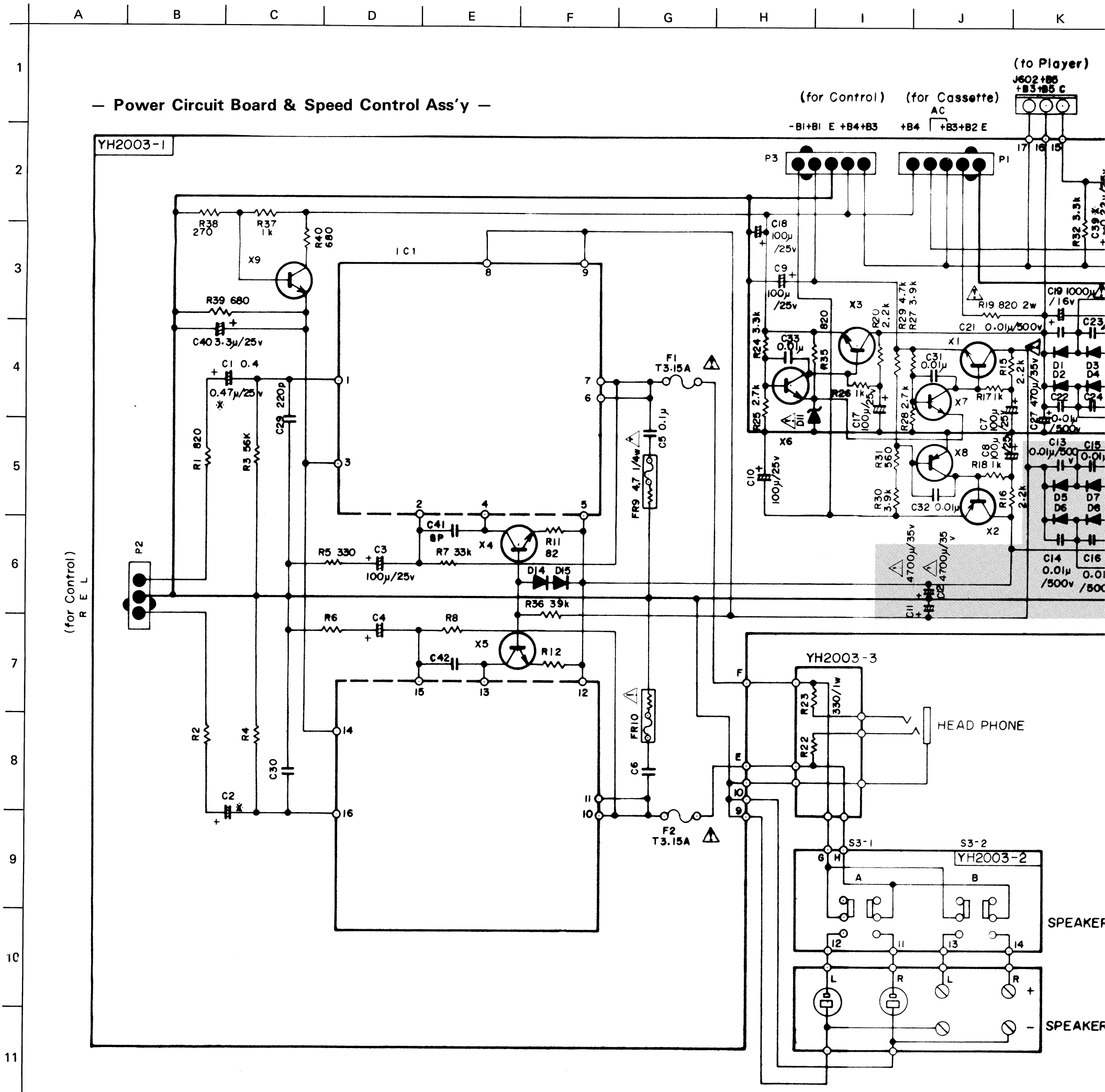
RECORD PLAYER PARTS

The mark * means new parts.

Ref. No.	Parts No.	Parts Name	Remarks	Q'ty
1	*Y10086-001	Motor Board		1
2	E60119-002	Lid Cushion		2
3	*Y30263-001	Support Bracket		2
4	SBSB3008Z	T. Screw		8
5	*YH4001-A	Speed Control Circuit Board Ass'y		1
6	GBSB3008Z	T. Screw		1
7	*Y40618-001	Cushion		4
8	Y40530-001	Shaft		4
9	*Y40628-001	Cover Sheet		1
10	Y40406-002	Motor Base		1
11	SBSB4010Z	T. Screw		3
12	MHX-5P2RDA	Motor Ass'y		1
13	53492	Rubber Bushing		3
14	Y40209-009	Tube Spacer		3
15	WNS2600Z	Washer		3
16	LPSP2608Z	Screw		3
17	*Y40412-003	Motor Pulley Ass'y		1
18	Q03095-206	Washer		1
19	SPSP3008ZS	Screw		1
20	*Y10087-001	Turntable		1
21	G30005	Belt		1
22	—	—		
23	*Y20074-001	T.T. Covering		1
24	*MP-191S	Pick-up Ass'y		1
25	WNS2600Z	Washer		1
26	LPSP2608Z	Screw		1
27	Y40606-001	Pick-up Cap		1
28	*Y40594-002	Center Shaft Ass'y		1
29	REE3000	"E" Ring		1
30	E49595-003	Elevator Cam		1
31	WSS3000Z	Washer		1
32	Y40440-001	Cam Rod		1
33	E49596-001	Spring		1
34	Y40581-001	Elevator Arm		1
35	Y40582-002	Elevator Shaft		1
36	SSSP2608N	Screw		1
37	E49650-001	Spring		1
38	REE3000	"E" Ring		1
39	Y40583-001	Cam Shaft		1
40	Y40584-001	Lifter Knob		1
41	Y40585-001	Lifter Lever		1
42	Y40587-002	Spring		1
43	Y40607-001	Arm Rest Ass'y		1
44	SBSB3010Z	T. Screw		1
45	*Y40614-001	Arm (B)		1
46	SPSP3006ZS	Screw		1
47	*Y40613-001	Arm (A)		1
48	*Y40612-001	Knob		1
49	*Y40658-001	Wave Washer		1
50	*Y40615-001	Cam		1
51	*YWS3001-009	Spring		1
52	*Y40611-001	Knob		2
53	*Y40627-001	Shield Plate		1
54	*Y40610-001	Lever		2
55	*Y40209-010	Tube Spacer		2

MF-55LS Mark II Schematic Diagram

— Power Circuit Board & Speed Control Ass'y —

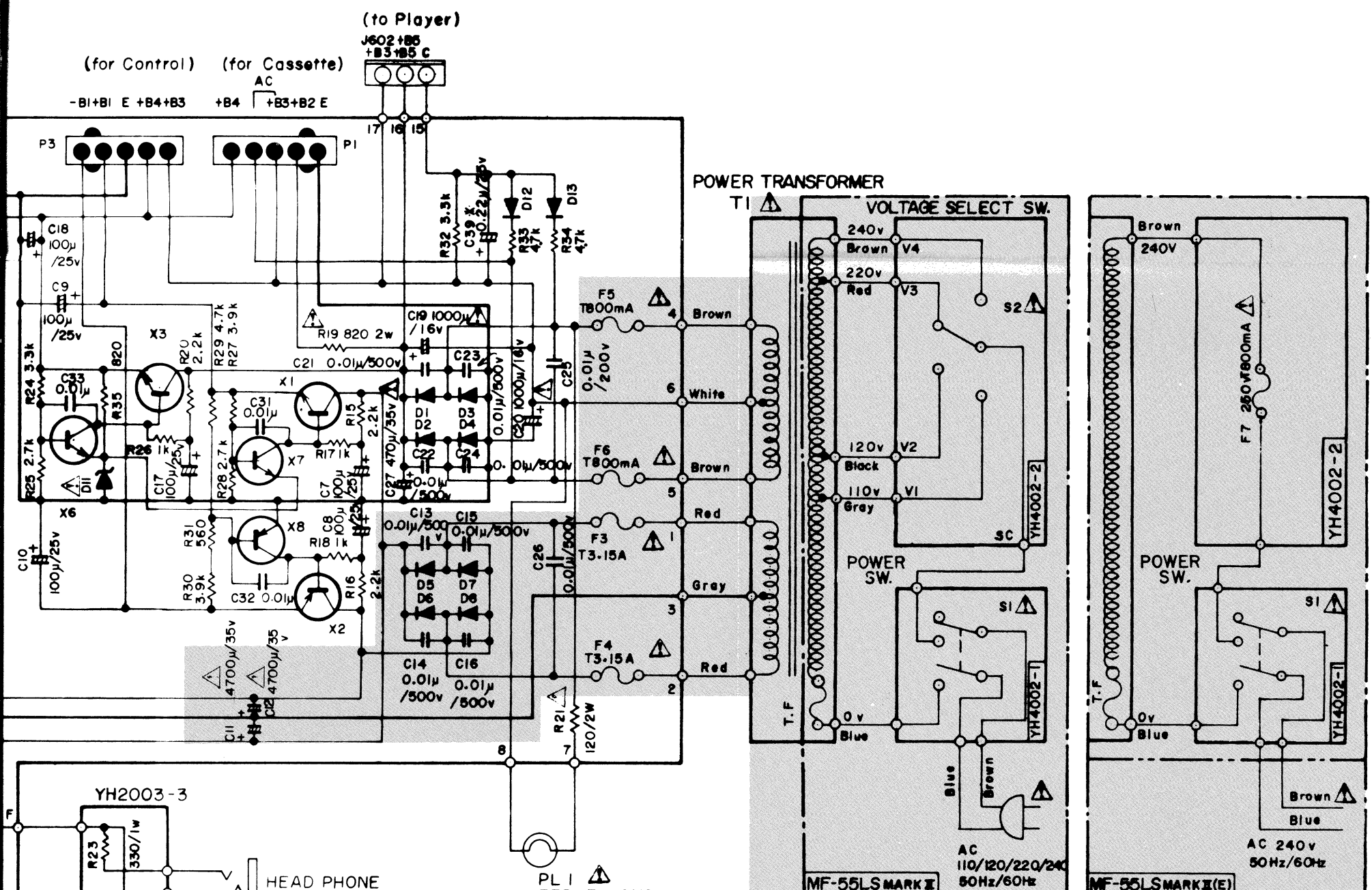


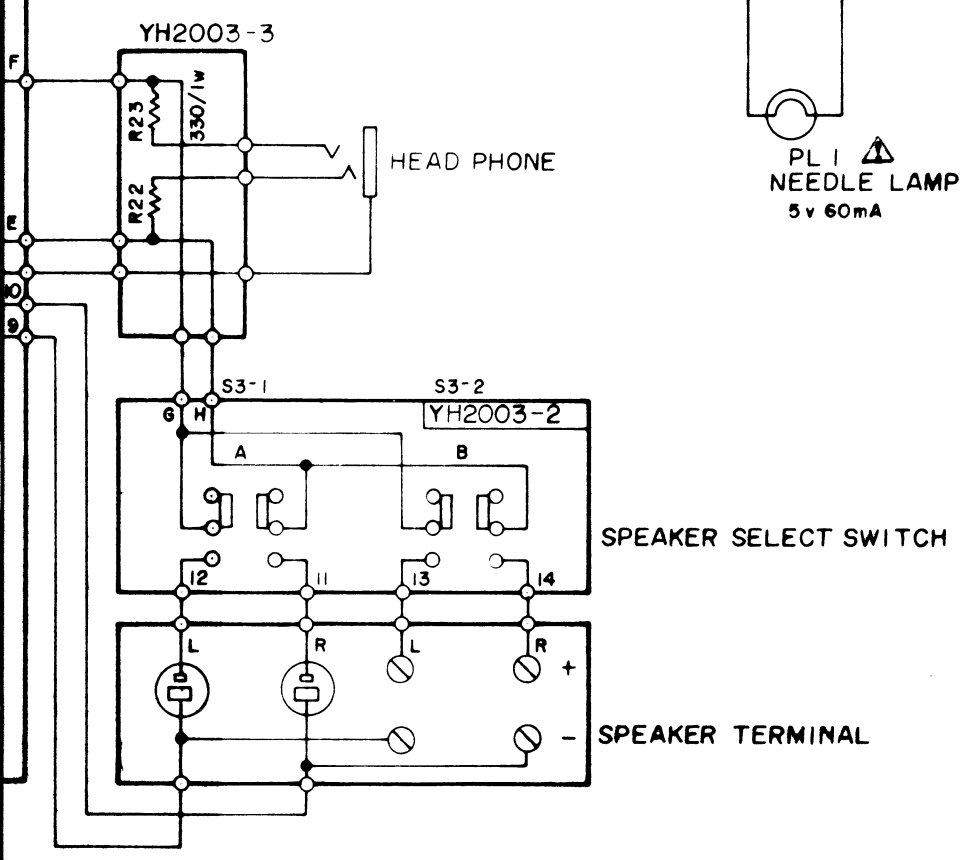
Terminal Voltages of Transistor & IC

X No.	SEMICON.	V(B)	V(C)	V(E)	X No.	SEMICON.	V(B)	V(C)	V(E)	D1 ~ D4	10E1-B
X 1	2SD325E	+16.2	+29	+15.8	X 6	2SC458D	+ 6.5	+16.3	+ 5.8	D5 ~ D8	30D2-B
X 2	2SB511E	-17	-29	-16.3	X 7	2SC458D	+ 6.4	+16.2	+ 5.8	D12 , D13	1S2075K
X 3	2SD325E	+15.2	+27	+14.5	X 8	2SA936E	- 0.6	-16.5	0	D14 , D15	1S2075K
X 4	2SC2363F	-27.8	- 1.1	-28.4	X 9	2SC1345DE	+ 3.4	+ 9.0	+ 2.7	D11	RD 5.6EB3
X 5	2SC2363F	-27.8	- 1.1	-28.4							

IC No.	INT. CIRCUIT	1	2	3	4	5	6	7	8	9	10
I C 1	STK463	0	0	+2.7	-1.1	-29	0	0	+29	+29	0

H | I | J | K | L | M | N | O | P | Q | R



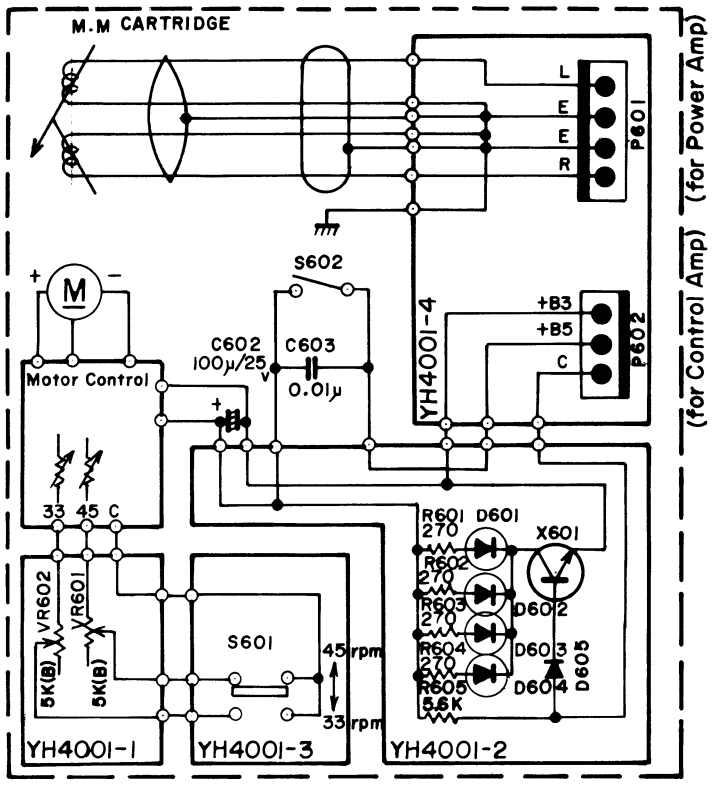


✱ : LOW LEAK CURRET E.CAPACITOR
FR : FUSIBLE RESISTOR

⚠ : SAFETY Parts
▒ : SAFETY Circuit

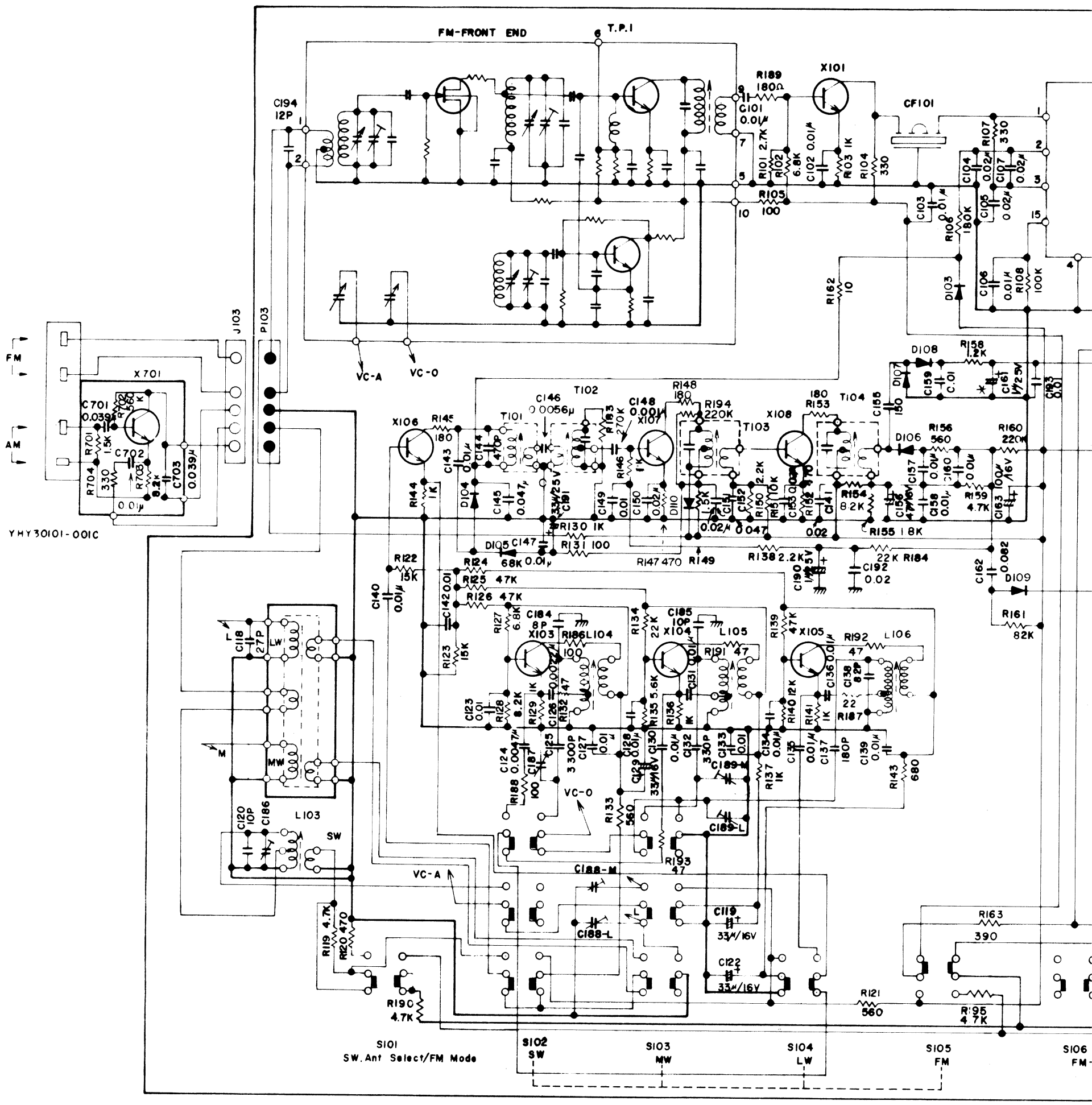
CIRCUIT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
K463	0	0	+2.7	-1.1	-29	0	0	+29	+29	0	0	-29	-1.1	+2.7	0	0

— PLAYER UNIT (Speed Control Ass'y) —



MF-55LS Mark II Schematic Diagram

— Tuner Circuit Board —



SW No.	FUNCTION	POSITION	X No.	SEMICONDUCT	IC No.	INT. CIRCUIT	VR No.	FUNCTION	D No.	SEMICONDUCT
S101	SW DX-LOCAL/MONO	DX/ST.	X701, 101	2SC710CD	IC101	HA1137W	VR180	FREE RUNNING FRQ	D101, 102	IS2473
S102	SHORT WAVE	]	X103, 104	"	IC102	LA3350A	VR166	SEPARATION ADJ	D103, 109	"
S103	MEDIUM WAVE	]	X105, 106	"					D104~108	IS188FM
S104	LONG WAVE	] FM	X107, 108	"					D110	"
S105	FM	]							D501, 502	TLR114
S106	FM MUTING	OFF								

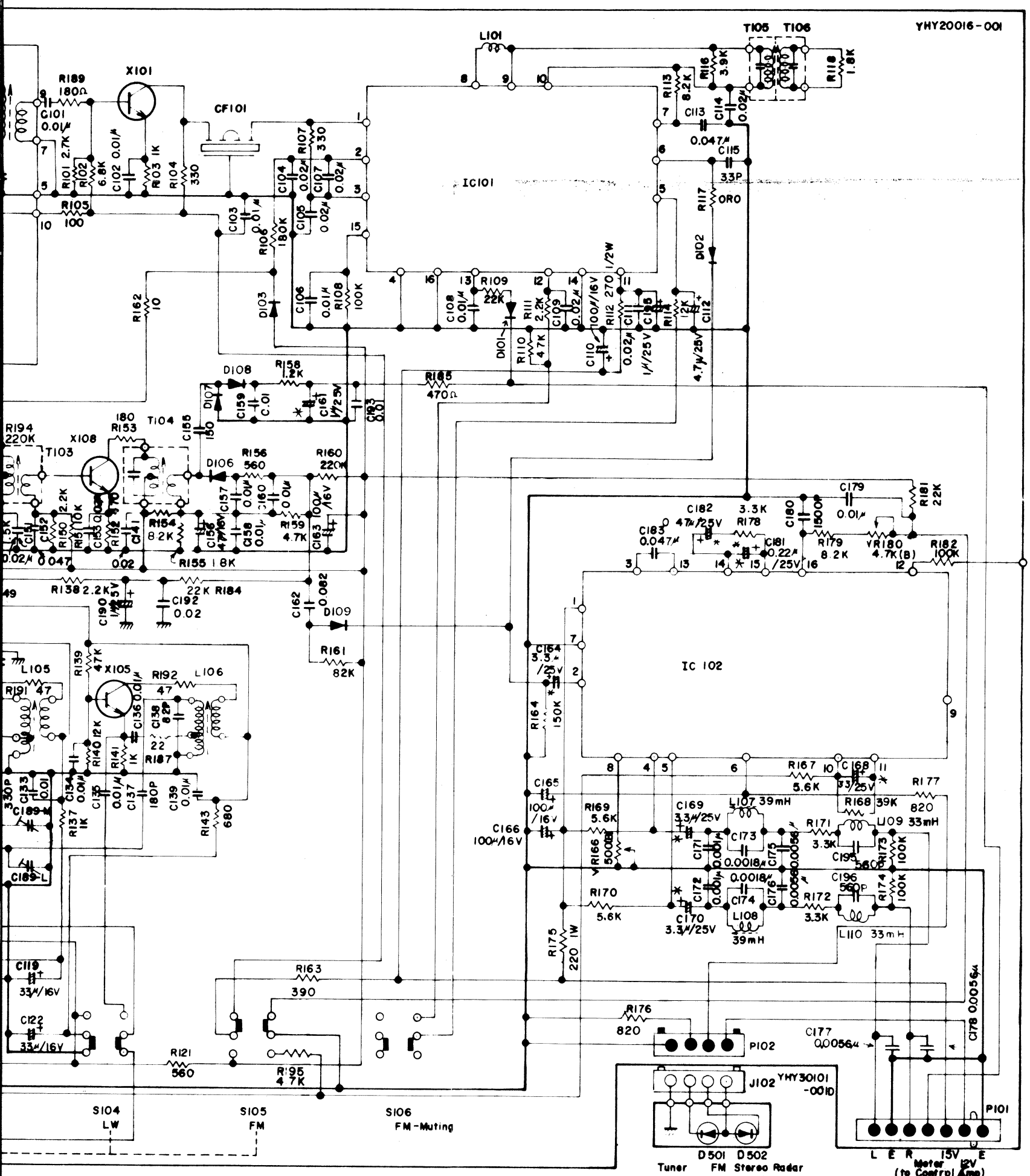
Terminal Voltages of Transistor & IC

	X701	X101	X103	X104	X105	X106	X107	X108
B	4.7	2.9	3.6	1.2	1.6	1.2	1.4	1.9
C	9.5	9.3	6.0	9.0	9.0	9.4	7.6	9.6
E	4.1	2.1	3.0	0.6	1.0	0.6	0.8	1.1

INT : INTEGRATED
VR : VARIABLE RESISTOR
L.E.D : LIGHT-EMITTING DIODE
V.C : VARIABLE CAPACITOR
CF : CERAMIC FILTER

* :

H | I | J | K | L | M | N | O | P | Q | R



Terminal Voltages of Transistor & IC

	X701	X101	X103	X104	X105	X106	X107	X108	
B	4.7	2.9	3.6	1.2	1.6	1.2	1.4	1.9	V
C	9.5	9.3	6.0	9.0	9.0	9.4	7.6	9.6	V
E	4.1	2.1	3.0	0.6	1.0	0.6	0.8	1.1	V

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
IC101	2.0	2.0	2.0	0	0	5.5	5.9	5.6	5.6	5.6	9.3	4.1	0	0	5.0	0	V
IC102	11.0	3.0	6.3	5.4	5.5	1.5	0	0.3	6.4	0	1.8	2.1	2.0	2.0	2.0	2.8	V

INT : INTEGRATED
VR : VARIABLE RESISTOR
L.E.D : LIGHT-EMITTING DIODE
V.C : VARIABLE CAPACITOR
CF : CERAMIC FILTER

★ : LOW LEAK ELECTROLYTIC CAPACITOR

Ref. No.	Parts No.	Parts Name	Remarks	Q'ty
56	Q03091-105	Washer		2
57	E49596-001	Spring		1
58	*Y40616-001	Reject Rod		1
59	E49679-001	Rod Holder		1
60	E33901-004	Spindle Ass'y		1
61	*Y40548-002	Base Sub Ass'y		1
62	E21656-001	Gear Sub Ass'y		1
63	REE5000	"E" Ring		1
64	E49625-001	Lower Trip Pawl		1
65	E49627-001	Engagement Pawl		1
66	REE2000	"E" Ring		1
67	E49613-004	Return Lever Ass'y		1
68	E49657-002	Switch Lever		1
69	Y40515-001	Return Spring		1
70	E49607-001	Bushing		1
71	REE3000	"E" Ring		1
72	SPSP3012ZS	Screw		1
73	RDS3000F	"CS" Ring		1
74	E49623-003	Reject Lever		1
75	E49651-001	Spring		1
76	E33892-001	Arm Lever		1
77	E33893-001	"		1
78	NTB4000S	Nut		1
79	YWS4006FS	W. Set Screw		1
80	LPSP3016ZS	Screw		1
81	E49611-001	Spring		1
82	E33894-002	Trip Slide		1
83	G4942-3	Speed Nut		1
84	E49873-002	Ball Holder		1
85	G41505-1	Steel Ball		1
86	QSM1V01-018	Micro switch		1
87	Q03091-138	Washer		1
88	LPSP3014ZS	Screw		2
89	Q03091-110	Washer		3
90	E60131-001	Screw		3
91	E60132-002	Spacer		3
	MD1032	Cartridge		
	DT-36	Stylus		

JVC

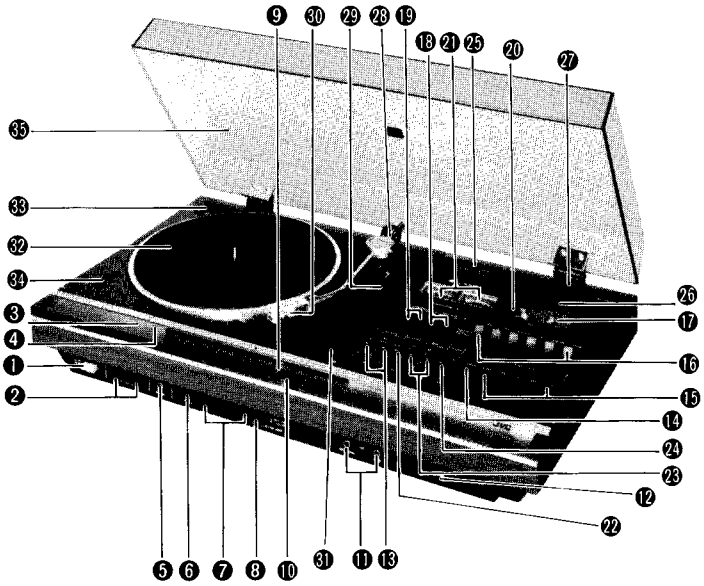
VICTOR COMPANY OF JAPAN, LIMITED.
MODULAR DIVISION 12, 3 chome, Moriya-cho, Kanagawa-ku, Yokohama, 221 Japan

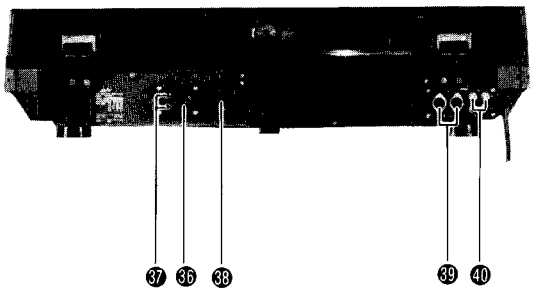
Printed in
–5307

Features

- 25 watts per channel
- Two speaker systems available
- DC servo motor (DC 12 V) for record player
- Detachable head shell and adjustable counterweight
- Super ANRS and ANRS
- Tape select switch (Equalization and Bias)
- Air-damped cassette compartment door
- 4-Band (FM/LW/MW/SW) Tuner

Names of External Parts





1. Power switch (POWER)
2. SPEAKER selector switches (A-B)
3. Radio indicator (RADIO)
4. FM stereo indicator (FM STEREO RADAR)
5. Headphone jack (PHONES)
6. FM muting switch (FM MUTING)
7. Radio band selectors (FM/LW/MW/SW)
8. SW sensitivity selector/FM mode switch (SW SENS./ FM MODE)
9. Illuminated dial pointer
10. FM/LW/MW/SW tuning dial
11. Microphone jacks (MIC, LEFT-RIGHT)
12. Tuning knob (TUNING)
13. Recording level controls (REC LEVEL, LEFT and RIGHT)
14. Loudness switch (LOUDNESS)
15. Source selection buttons (SOURCE SELECT-RADIO, PHONO, MIC, CASSETTE, AUX)
16. Cassette operation buttons (REWIND, REC, PLAY/ REC, FF, STOP/EJECT, PAUSE)
17. Cassette holder
18. TAPE SELECT buttons (EQUALIZER, BIAS)
19. NOISE REDUCTION buttons (ANRS, Super ANRS)
20. RECORDING INDICATOR
21. REC LEVEL meters (LEFT/RIGHT-TUNING)
22. BALANCE control
23. TONE control (BASS, TREBLE)
24. VOLUME control
25. BEAT CUT switch
26. TAPE COUNTER/Counter reset button
27. Free-stop cover hinge
28. Counterweight with stylus pressure dial scale
29. Cue lever
30. REJECT lever
32. Turntable
33. EP adapter
34. Speed selector switches (33, 45)
35. Dust cover
36. REC/PB jack
37. Auxiliary input terminals (AUX IN)
38. ANTENNA terminals
39. Speaker DIN terminals (SPEAKER SYSTEM A)
40. Speaker screw terminsla (SPEAKER SYSTEM B)

New Techniques

PLL MPX Decorder

Conventional MPX and PLL MPX decorder circuitry

Although there is a wide variety of multiplex decorder circuits, most employ the switching method shown in Fig. 1. In this circuit, a 38-kHz switching signal is generated from the 19-kHz pilot signal included in the detector output (composite signal), and the composite signal then switched to separate into the right-channel signal and the left-channel signal. However, it is very difficult to eliminate temperature and unexpected changes in the 19- and 38-kHz filters, which are tuned circuits, each consisting of a coil and a capacitor. In addition, separation and distortion deteriorate markedly when they are detuned even slightly. Filter stability has been one of the central problems in the design of conventional multiplex decorders.

The PLL multiplex decorder employed in this unit consist of a single IC and does not use even a single coil, thus there is no need to worry about deterioration of separation.

Actual terminal connection to this IC is shown in Fig. 2, and Fig. 3 is showing the block diagram of internal circuit. Fig. 4 is showing the heart of a phase-locked loop.

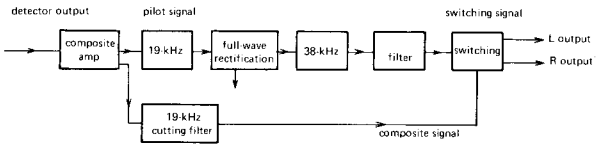


Fig. 1

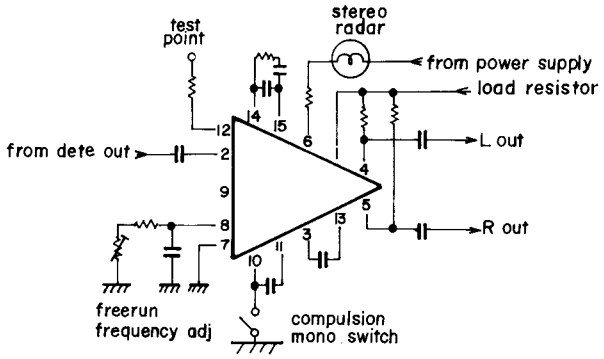


Fig. 2

The Operation of PLL

The phase-locked loop circuit generates 38-kHz and 19-kHz rectangular wave for effective switching signal, which is synchronized (phase-locked) with the incoming signal.

The synchronizing operation is made as follows.

VCO in Fig. 4 is a voltage controlled oscillator and oscillates at a predetermined frequency (free-run frequency) when no control signals.

DET (phase comparator) compares the phase of Vi pilot signal and Vo free-run frequency, to generator error voltage Ve. The error voltage is amplified and selected by passing through amplifier AMP and low pass filter LPF.

Then error voltage controles the frequency and phase of the output Vo of VCO. So the output Vo is phase-locked by the phase of the pilot signal 19-kHz. This phase-locked output Vo is used as a switching signal as shown in Fig. 3.

One of big causes deteriorating the separation is the phase error between pilot signal and switching signal.

But thus in PLL MPX decorder the phase of switching signal is forced to be in phase with pilot signal.

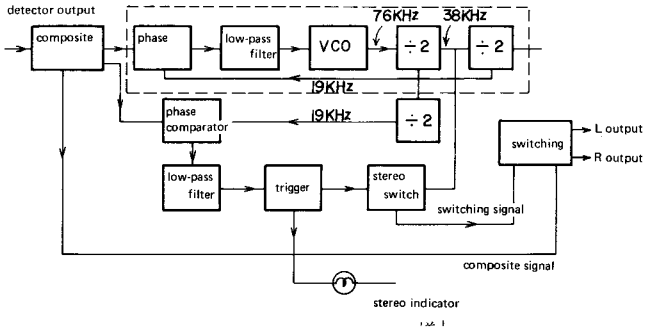


Fig. 3

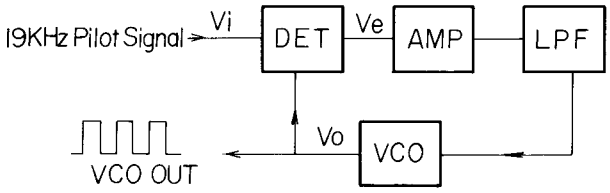


Fig. 4

Advantages of PLL use in multiplex decorder

(1) An exact rectangular wave for switching signal improves separation and distortion.

(2) Deterioration caused by inexact tune is improved. Because once free-run frequency has been phase-locked, reduction of pilot signal caused by inexact tune does not affect the deterioration of separation or distortion.

(3) Reliability remains high over a long period.

Adjustment of PLL MPX

PLL MPX adjustment is very easily performed with only a semi-fixed variable resistor which determines the free-run frequency. Connect a frequency counter to the VCO test point (12) in Fig. 2 where the 19-kHz rectangular wave develops, and adjust the semi-fixed variable resistor connected to pin (8) until the VCO free-run frequency becomes 19-kHz.

When a frequency counter is not available, try an easy alternate method as follows.

Tune to an FM STEREO broadcast and set the semi-fixed variable resistor in the center of the area at which stereo indicator remains lighted as the semi-fixed resistor is turned left and right.

Quadrature detector for FM detector

This model is equipped with quadrature circuit IC for FM IF amplifier and detector which ensures effective and distortion-free reception, and this circuit requires no complicated alignment such as conventional detector or IF amplifier.

Fig. 5 shows the block diagram of detector circuit in quadrature IC.

Simplified operation is that FM IF signal Ein is applied to limiting amplifier and one of its output is limited to be a rectangular wave and the other is only amplified.

The rectangular wave phase is shifted by phase shifter.

Multiplier produces the output voltage proportional to the phase difference between two signals and this operation is namely FM detection, for frequency modulation can be calculated as a phase modulation.

DC servo motor for recordplayer

Record player of this model employed DC frequency servo motor for good stability of rotation.

This motors operation is as same as that of cassette motor employed in CD-1635 portable cassette recorder.

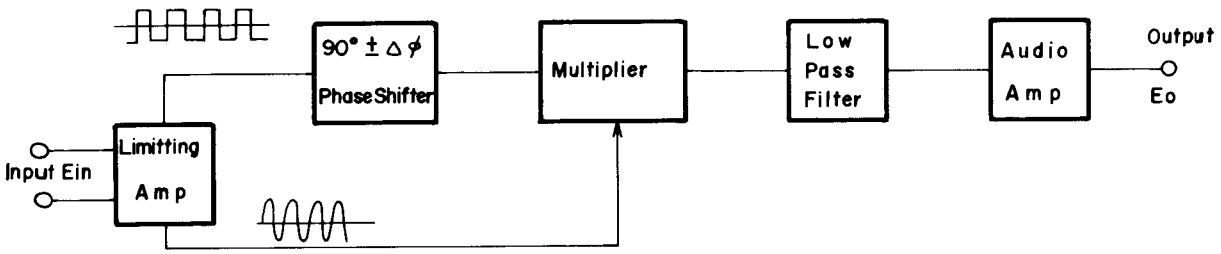


Fig. 5

Cautions for Speaker Connection

MF-55LS has two speaker terminals (A and B) per channel. And when use both A and B simultaneously, the load connected to A and B are connected to the power amplifier in parallel. But specified load impedance of the power amplifier is 4 ohms or more.

So when use one speaker system to A or B terminal, the impedance of the speaker should be 4 to 16 ohms. When use two speaker systems to A and B terminal, the impedance of both speaker systems should be 8 to 16 ohms.

Disassembly Instruction

To remove main components, follow the following order.

1. Dust cover
2. Record player unit
3. Cassette deck unit
4. Control panel unit

How to remove main component

Item	Removal Sequence	Reference
Dust cover	Open it and slide it slightly to the right. Sliding action disengages it from hinges.	
Record player unit	Remove platter with disengaging the driving belt. Remove the screw ①. The three red screws are used for transit securing. Lift the front end of the motor board and disconnect the two connectors. (motor power supply and cartridge signal) Then take it off.	Fig. 6
Cassette deck unit	Remove the hexagon socket head screws ②, ③ by 2.5 mm hexagon screw driver or wrench. Remove the three screws ④, ⑤, ⑥. Remove the screw ⑦ on the rear of the cabinet. Disconnect two connectors. Lift the left side of the cassette panel and push the right side of it to the left so that the lock by the spring under cassette front panel should be released.	Fig. 7
Control panel unit	Remove the screws ⑧, ⑨. Pull it backward to be free from cabinet and then disconnect the connectors.	Fig. 12
Tuner circuit board	Loosen the two screws securing the dial drum. Pull out the drum from the shaft of variable capacitor carefully not to disengage the dial rope around it. Put it on to the plastic boss ⑩. Then remove the six screws securing circuit board.	Fig. 12
Power circuit board	Remove the three screws ⑪, ⑫, ⑬, securing the metal cover on the big heat sink. Remove the seven screws ⑭ – ⑳ and disconnect the wire connections. Remove the circuit board with the heat sink.	Fig. 12
Dial scale and its holder (Fitting)	Loosen the three set screws ㉑, ㉒, ㉓. Slide the dial scale out from its holder. Set the dial pointer (Needle) to the left end of its travel. Disconnect the connector to the radio and stereo indicators from the tuner circuit board. Remove the two screws ㉔, ㉕. Slide the holder to the right on to the wooden frill (Cabinet) so that the dial pointer should be slipped down from its guide rail. Then take it off.	Fig. 12 Fig. 12
Wooden frill (Cabinet)	After removing record player, cassette deck, control panel and dial scale holder (Fitting) remove nine screws securing it. Then pull it toward you to full depth length, for the fin of the bottom board is engaged to the slot provided in the Cabinet.	
Note: At cassette deck servicing, it is convenient to remove the male connector for cassette from the bottom board.		

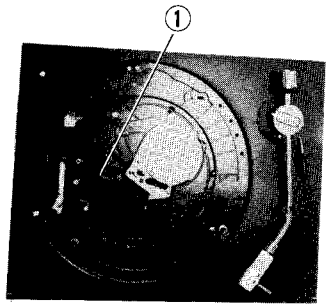


Fig. 6

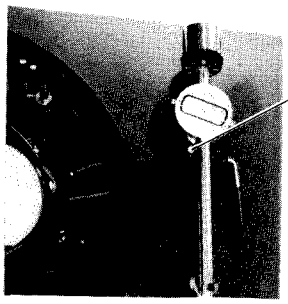


Fig. 9

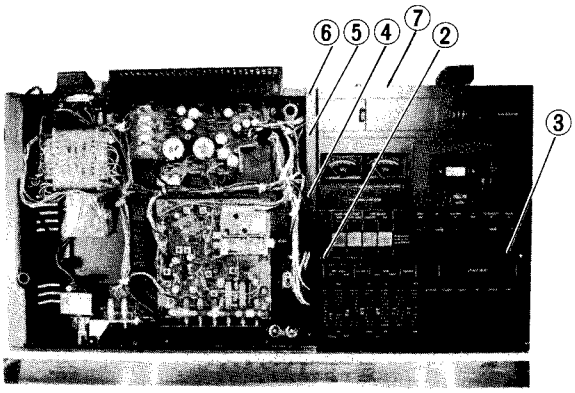


Fig. 7

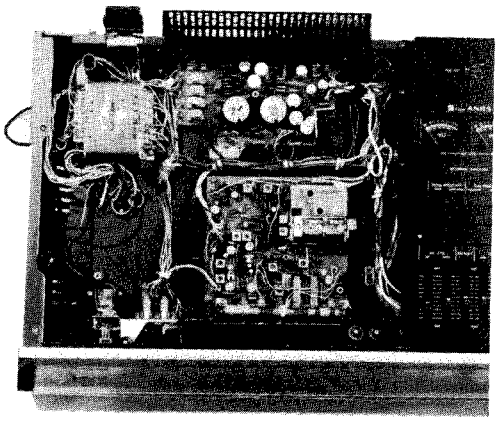


Fig. 10

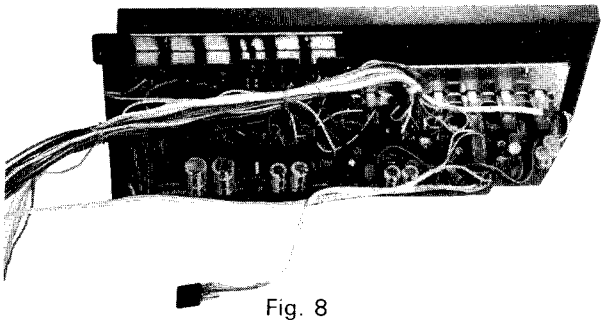


Fig. 8

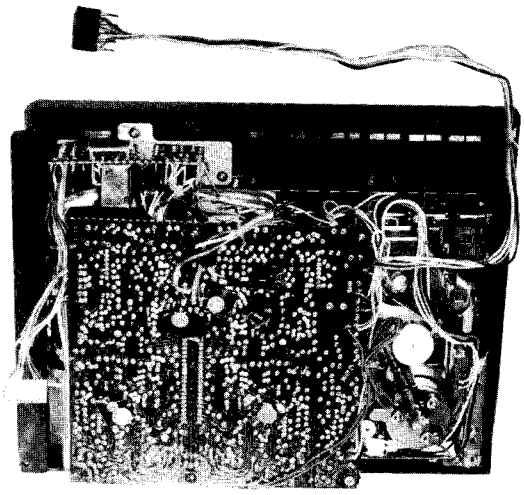


Fig. 11

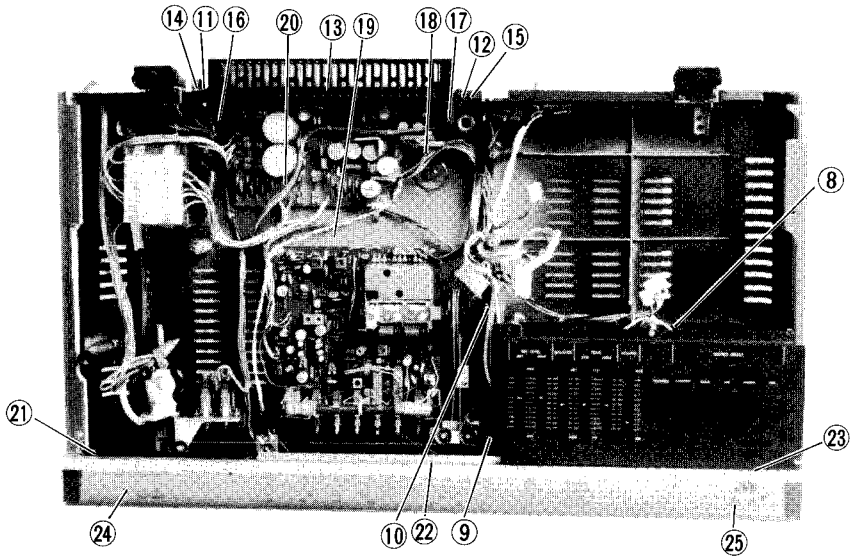


Fig. 12

Record Player Adjustment

Lead-out adjustment

After replacing the cartridge or changing the lead-out mechanism, adjust using the following procedure:

- When the arm does not lead out.
  Play JVC test record RG-652 (pitch 3mm) and turn the adjusting screw shown in Fig.13 counterclockwise until the tonearm leads out properly.
- When the arm leads out too early (before reaching the most inner groove), play JVC test record RG-653 (reverse side of RG-652) and turn the adjusting screw clockwise until the tonearm leads out properly.

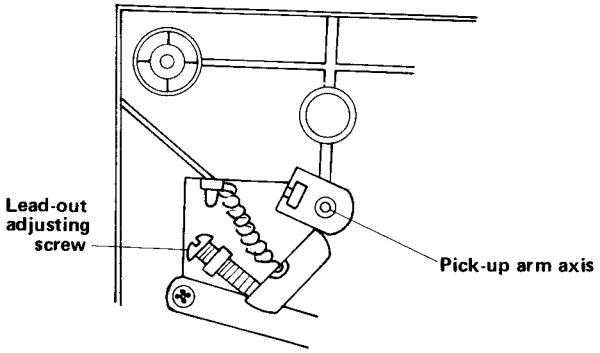
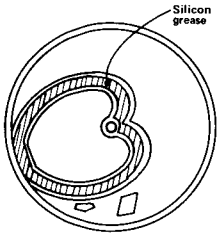


Fig. 13



Lubrication

- Apply silicon grease to the groove on the rear side of the gear as shown in Fig. 8-1.

Stylus tip position adjustment

Adjust the height of the stylus tip with the adjusting screw on the arm elevator shown in Fig. 9 until the distance between the stylus tip and record surface is approximately 10mm when the arm leads out. Turning the screw clockwise lowers the stylus tip and counterclockwise raises it.

Speed adjustment of turntable

Adjust two semi-fixed resistor on the motor control circuit board for each speed.

45 rpm : (A)
33 rpm : (B) in Fig. 14

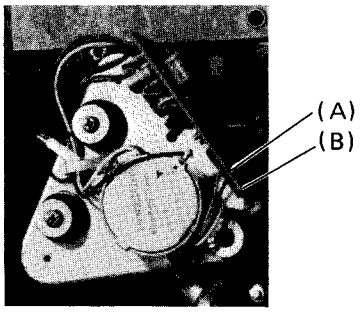


Fig. 14

How to Remove Cassette Deck Mechanism

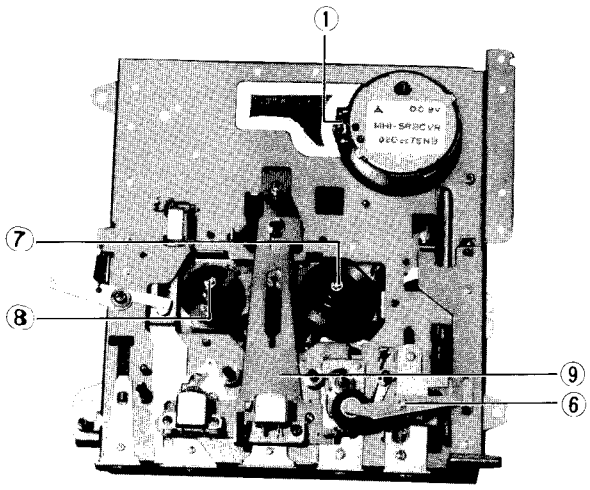


Fig. 15

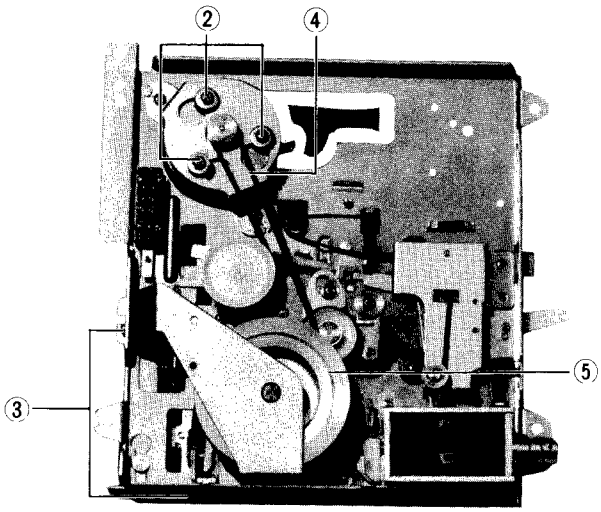


Fig. 16

Item	Removal sequence	Drawing No. and Remarks
Motor	1. Unsolder the motor wires. (red: 1, black: 1) 2. Remove the 3 screws.	Fig. 15 ① Fig. 16 ②
Flywheel	1. Remove the 2 screws securing the flywheel holder. 2. Disengage the capstan belt. 3. Remove the flywheel.	Fig. 16 ③ Fig. 16 ④ Fig. 16 ⑤
Pinch roller arm assembly	1. Remove the E-ring retaining the pinch roller arm assembly. 2. Remove the pinch roller arm from the shaft.	Fig. 15 ⑥
Takeup reel disc	1. Remove the E-ring retaining the reel disc. 2. Remove the reel disc from the shaft.	Fig. 15 ⑦
Supply reel disc	1. Remove the E-ring retaining the reel disc. 2. Pull the reel disc from the shaft.	Fig. 15 ⑧
FF idler & Takeup roller	1. Remove the play lever assembly. 2. Pull the roller from the shaft.	Fig. 15 ⑨
Note: Parts other than those described above are removed after removing the E-ring and screw. If connected to the spring, first remove the spring.		

Checks after Replacement

1. Pinch roller pressure

- The pinch roller pressure must be within 350–450g. Confirm that the pinch roller does not touch the capstan, that the roller continues to rotate after being rotated by the finger and that the rubber retains its elastisity.
- The pinch roller surface contacting the capstan must be vertical.

2. Flywheel

- A certain amount of thrust clearance exist between the flywheel shaft bearing and special washer. You will hear a small rattle if you move the flywheel axially.
- The flywheel rotates for a while by inertia when turned with the belt removed.
- The diameter of the capstan directly determines the tape speed. Of all cassette deck mechanism components, the capstan requires the highest accuracy. Any capstan out-of-roundness has a direct affect on wow and flutter. Therefore, it is essential that the capstan always be clean, correctly centered and provide quiet rotation.

3. Play torque

- Play torque must be within 40–60g/cm. The friction disc must continue to rotate when the end of the reel disc shaft is held while the deck is in the PLAY mode without a cassette. If play torque is not within the specified range, the following action must be taken.
  1. Wipe the takeup disc periphery and the parts which come in contact with the disc periphery with a cloth dipped in alcohol.
  2. Replace the takeup disc.
  3. Replace the takeup lever spring.

Head Replacement and Adjustment

1. Replacing the heads

- To remove the record/playback head first remove the two screws (1), (2) shown in Fig. 17. Next, remove the two screws (3), (4) to remove the erase head.
- After replacing the heads, carefully adjust the head vertical angle (azimuth adjustment).
  After completing head azimuth adjustment, adjust the playback sensitivity, recording bias current and recording signal current.

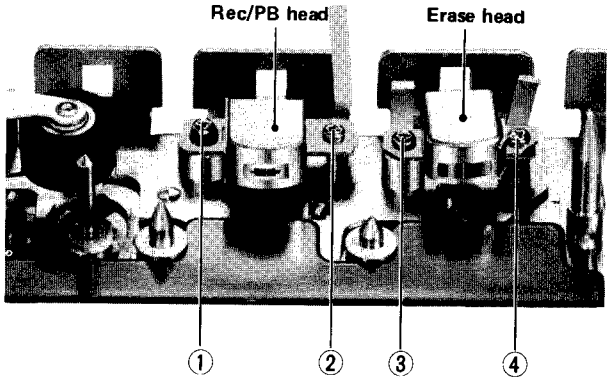


Fig. 17

2. Azimuth adjustment

- Connect an AC VTVM to the Speaker terminals L or R.
- Play the head angle adjustment test tape (VTT-615, 10kHz JVC), then adjust screw (2) until output is maximum. (When adjusting using a music cassette, secure the screw at the position providing the best high frequency sound.)
- After completing the adjustment, use a bonding agent to lock screw (2) in place.

Note: VTVM, Electronic voltmeter

Adjustment of Cassette Unit

Note: 1 dBs = 0.775 volt

1. Bias current, Bias frequency, Erase current

(1) Connection

Connect resistors in series to the erase head or Rec/PB head and test equipment as shown in Fig. 18.

(2) Adjustment

1. Bias current — VR207, 208 for normal
   VR209, 210 for chrome
   Get output voltages across 100 ohm 40 mV for normal and 60 mV for chrome.
2. Bias frequency — T201
   Get frequency on counter 57 kHz.
   Confirm that the counter reading varies about 2.5 kHz when the BEAT CUT SWITCH is set to +△f and −△f.
3. Erase current — No adjustment point
   Confirm the voltmeter reading if 100 mV ± 30 mV.

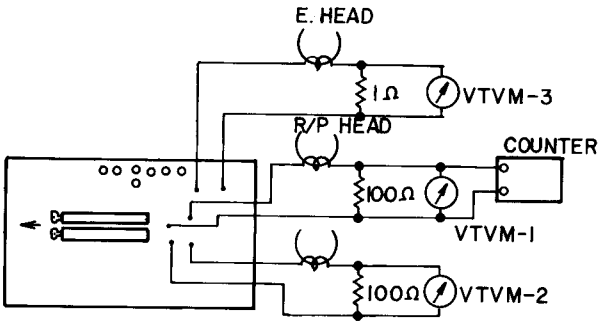


Fig. 18

2. Playback Gain and lever meter

(1) Connection

Connect voltmeters, DC power supplies and dummy load resistors 47 k ohm as shown in Fig. 19.

(2) Adjustment

(ANRS, Super ANRS OFF)

Play test tape VTT-664 16 mM (standard level tape). Set output voltage across 47 k ohm to −26 dBs with adjusting VR201, 202, 301, 302.

Also set level meters in unit to OVU with adjusting VR205, 206.

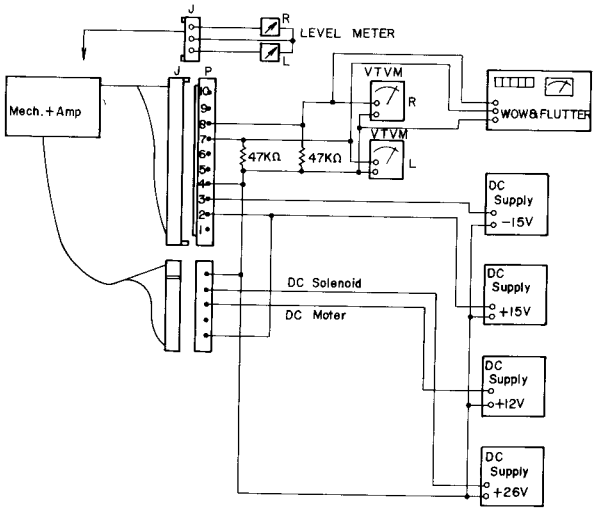


Fig. 19

3. Record/playback sensitivity

(1)Connection

Connect each equipment like as Fig. 20.

(2)Adjustment

(ANRS, Super ANRS OFF)

Record the 1 kHz signal at OVU level.

Then play back the tape and adjust the recording level with VR203, 204 until playback output reads - 26 dBs on voltmeter or level meter in the unit.

4. ANRS circuit

(1)Connection

Connect each equipment like as Fig. 21.

(2)Adjustment

(ANRS ON, not Super ANRS) and set unit to REC.

Apply 1 kHz – 23 dBs signal to REC terminal.

Adjust VR303, 304 to get output voltage –23 dBs.

Apply 1 kHz –63 dBs signal to REC terminal.

Adjust VR307, 308 to get output voltage –57 dBs.

Apply 5 kHz –43 dBs signal to REC terminal, adjust VR305, 306 to get output voltage –39.5 dBs.

Note: In Super ANRS mode, there is no adjusting point.

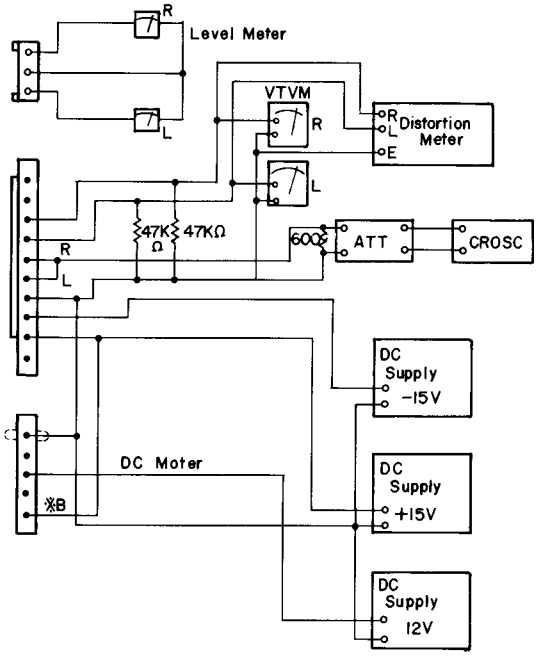


Fig. 20

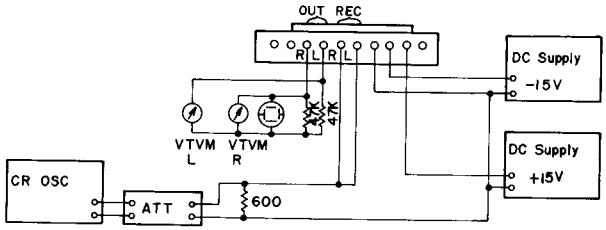


Fig. 21

Operation Check of Control Unit

After servicing or at checking defect, check control unit circuit as follows.

1. Equipment required

1)	Stabilized DC power supply	2 (+15 V and –15 V)
2)	Audio frequency oscillator	1
3)	Audio frequency attenuator	1
4)	Electronic voltmeter	1
5)	Oscilloscope	1

2. Check: Refer to the schematic Diagram.

Connect 47 kΩ resistors as a dummy load between connector terminals (J2) L-E and R-E.

Supply DC power +15 V for +B1 and –15 V for –B1 to the connector (J1).

Check circuit operation following to the level diagram Fig. 23 with 1 kHz signal. (VOLUME: Center position)

The easy way to check is that connect electronic voltmeter parallel to 47 kΩ dummy load and that apply 1 kHz described level signal to each input signal terminal and check if voltmeter pointing –18.5 dBs.

The level allowance on each level is ± 3 dB.

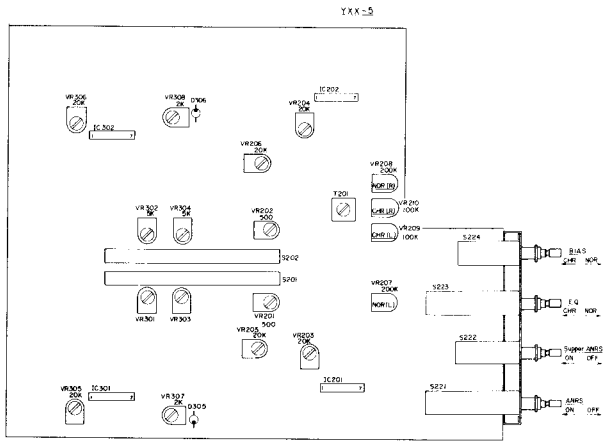


Fig. 22

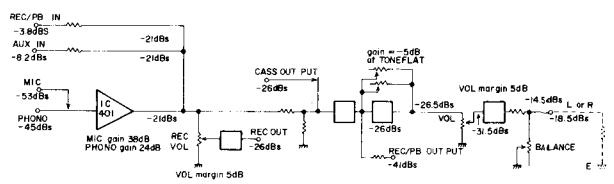


Fig. 23

AM IF & RF ALIGNMENT

- **IF Alignment**

  Equipment required : 455 kHz Sweep Generator with Oscilloscope
  Input terminal : A in Fig. 26
  Output terminal : B in Fig. 26

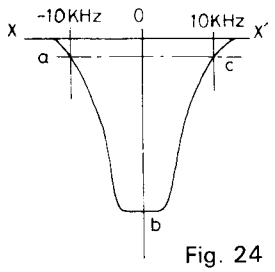


Fig. 24

- **RF Alignment**

  Equipment required : Standard Signal Generator
  Modulation 400 Hz, 30%
  Input terminal : Loop Antenna for LW and MW
  AM antenna terminal for SW
  Output terminal : Speaker terminal

Step	Band	Input Frequency	Alignment point	Set V. Capacitor to
1	MW (IF)	455 kHz	T101, 102, 103, 104	Center
2		Adjust T101, 102, 103, 104	Fig. 24	
3	SW	5.8 MHz	L104	Maximum
4		18.6 MHz	C187	Minimum
5		Repeat the step 3 & 4.		
6		7.2 MHz	L103	7.2 MHz
7		17.8 MHz	C186	17.8 MHz
8		Repeat the step 6 & 7 and adjust for no further improvement.		
9	MW	510 kHz	L105	Maximum
10		1680 kHz	C189-M	Minimum
11		Repeat the step 9 & 10.		
12		600 kHz	L102 (Bar ANT.)	600 kHz
13		1400 kHz	C188-M	1400 kHz
14		Repeat the step 12 & 13 and adjust for no further improvement.		
15	LW	145 kHz	L106	Maximum
16		360 kHz	C-189-L	Minimum
17		Repeat the step 15 & 16 and adjust for no further improvement.		
18		160 kHz	L102 (Bar ANT.)	160 kHz
19		350 kHz	C188-L	350 kHz
20		Repeat the step 18 & 19 and adjust for no further improvement.		

NOTE: When you adjust the bar antenna coil of MW or LW, check the tracking error for each band.
Because two coils interfere to each other though slightly.
Always use an insulated screw driver for adjustment.

FM IF and discriminator alignment

Equipment required : 10.7 MHz Sweep Generator with Oscilloscope
Input terminal : C (TP1) in Fig. 26
Output terminal : D in Fig. 26
Adjust at T105 and T106 as shown in Fig. 26

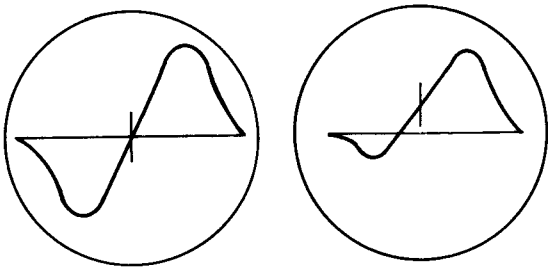


Fig. 25

FM RF alignment

Equipment required : Standard Signal Generator
Modulation 1000 Hz, 100% (75 kHz/Div.)
Output impedance 300 ohms
Input terminal : Refer under table.
Output terminal : Speaker terminal

Step	Band	Input Signal		Place to be aligned	Set V. Capacitor to
		Frequency	Given to		
1	FM	87.5 MHz	FM antenna terminal	No coils for adjustment	Maximum
2		109 MHz		Local oscillator trimmer	Minimum
3		Repeat the Step 1 & 2.			
4		88 MHz	FM antenna terminal	No coils for adjustment	88 MHz Signal
5		108 MHz		RF & ANT trimmer	108 MHz Signal
6		Repeat the Step 4 & 5, and adjust for no further improvement.			

PLL MPX VFO alignment

Connect a frequency counter to TP2 and asjust the VR180 until 19 kHz is obtained.

Note: If any input is present at the ANT terminal, the input frequency is pulled in. Be sure to detune before alignment.

Separation alignment

Adjust the VR166, L107, L108 so that left and right channel separation is maximum.

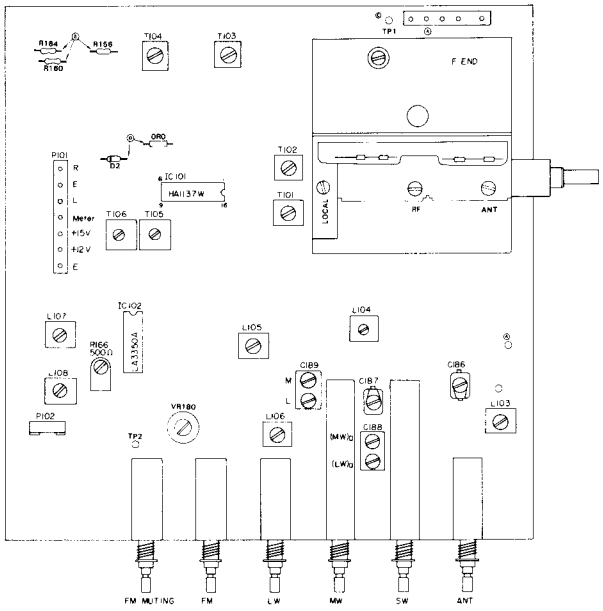


Fig. 26

Troubleshooting Cassette and Record Player

Cassette deck section

How to remove the cassette holder

Push the cassette holder down, then pull toward you.

Playback sound quality is poor.

1. Check if the Rec/PB head surface contacting the tape is dirty.
2. Check if the Rec/PB head is worn.
   A worn head causes deterioration of high frequency characteristics.
3. Check the voltage of each component for short-circuits and if each transistors function properly.

Recorded sound quality is poor.

In case the playback sound reproduced from a demonstration tape or a tape recorded with another deck is good, but that reproduced from a tape recorded with this unit is bad, check the following.

1. Check recording and playback sound quality.
2. If the result of 1. is not good, check each component for proper voltage short-circuits and proper functioning of each transistor.
3. If the result of 2. is normal, check the recording bias current and oscillator circuit.

Cassette deck mechanism

Wow and flutter, caused by irregular rotation of revolving parts, increases frequency in proportion to rotation. Play a 3000Hz test tape, and determine the parts rotating irregularly by the frequency variation.

Defective part	Symptom	Remedy
Capstan and flywheel	Capstan shaft wobbles. Flywheel turns heavily due to loose thrust and shaft damaged by heat.	Replace flywheel. Adjust the flywheel holder clean, oil or replace the bearing.
Pinch roller	Rough rotation caused by scratches or dust on surface. Not parallel to capstan shaft. Pressure on capstan insufficient.	Replace or clean pinch roller. Adjust by bending the roller holder. Adjust spring.
Capstan belt	Belt wobbles. Belt is dirty or slippery.	Replace belt. Clean or replace belt.
Back tension	Back tension is insufficient, or too strong.	Replace supply disc. Replace back tension spring.
Motor	Motor shaft has excessive play. Motor pulley is oily and dusty.	Replace motor. Clean motor pulley.
Take-up lever arm	Pulley shaft is inclining. Pulley seized.	Replace takeup idler arm.

Cleaning and lubrication

Cleaning:
Clean the surfaces of the Rec/PB head, capstan and pinch roller which contact the tape. If dust and dirt are allowed to accumulate, the sound quality will deteriorate. Clean with a cloth dipped in alcohol or benzine. Be careful not to allow the moulding or wood parts to be stained with the cleaning agent since damage will result.

Lubrication:
Apply a few drops of machine oil or D.T.E. oil to the idler axis and pinch roller axis once or twice as occasion calls. Excessive oil will splash onto other mechanism and cause increased wow and flutter.

Record player section

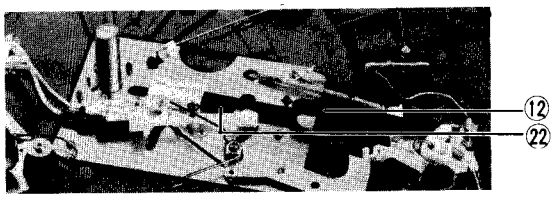


Fig. 27

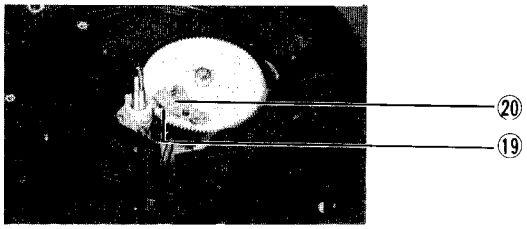


Fig. 28

Symptom	Cause	Remedy
Turntable does not turn when arm moves from the rest.	1. Motor does not turn due to defective switch. 2. Disconnected wire. 3. Motor inoperable. 4. Faulty contact between arm lever ass'y and switch lever ass'y (22). 5. The belt is disengaged.	1. Replace the switch. 2. Check for circuit conductivity. 3. Replace the motor. 4. Check the contact. 5. Check the belt.
Arm does not return when REJECT lever is operated.	1. REJECT lever inoperable. 2. Gears do not engage properly.	1. Check the lever, the REJECT spring and related parts. 2. Check lower trip pole (19) and engagement pole (20) shape. Check gear shape and spindle ass'y.
Arm does not return when play is finished.	1. Switching position improper. 2. Lead-out adjustment improper.	1. Check the switching position. Switch contact gap may be too open. 2. Re-adjust the lead-out position. (Refer to "Record player adjustment" section)
Arm returns while playing.	1. Arm lever ass'y (12) is deformed or incorrectly positioned (toward the turntable center).	1. Check the arm lever ass'y. 2. Adjust the arm lever mounting position.
Stylus touches the record surface when arm returns to rest.	1. Stylus height improper.	1. Adjust (refer to the "Record player adjustment" section).
Output signal not obtained from player.	1. Pick-up lead wire disconnected. 2. Connections improper. 3. Cartridge defective.	1. Resolder. 2. Check for conductivity. 3. Replace the cartridge.

How to Engage Dial String

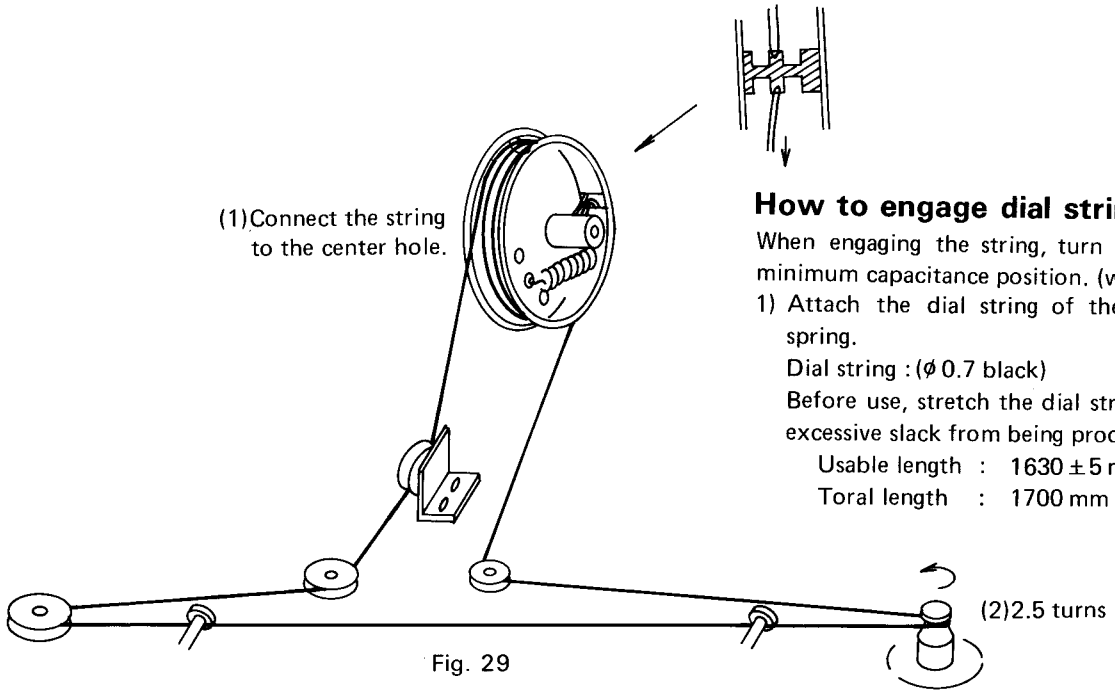


Fig. 29

How to engage dial string

When engaging the string, turn the variable condenser to minimum capacitance position. (with plates fully exposed.).

1) Attach the dial string of the specified length to the spring.
   Dial string : (ø 0.7 black)
   Before use, stretch the dial string sufficiently to prevent excessive slack from being produced during initial usage.
   Usable length : 1630 ± 5 mm
   Toral length : 1700 mm (including securing knot)

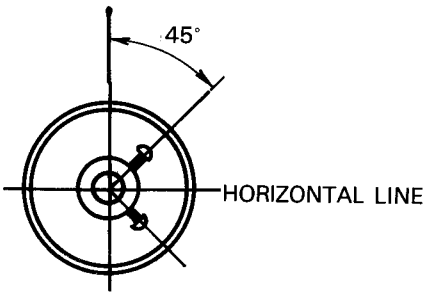


Fig. 30

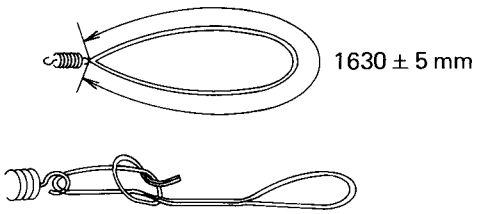


Fig. 31

Set drum as illustrated in Fig. 30, when engaging dial strihg.

2) How to tie the dial string
   - ○ Tie the string as shown in Fig. 31.
     Engage the string as shown in Fig. 29.
   - ○ After completing engagement, turn the Tuning knob to confirm that the string is correctly engaged and that the knob turns smoothly.

How to insert the the lamp into the pointer

There are two types of pointers, one with the hole on the right side and one with the hole on the left side.

Insert the lamp in the same manner for the right side hole type.

How to position the tuning dial scale

Insert the dial scale into the aluminum positioning bracket from the side.

Three set screws on the rear side are employed to secure the scale. Tighten the center screw firmly.

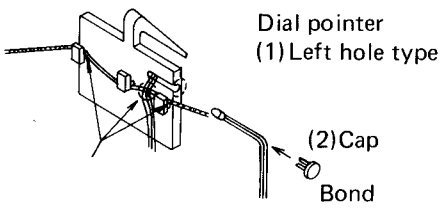


Fig. 32

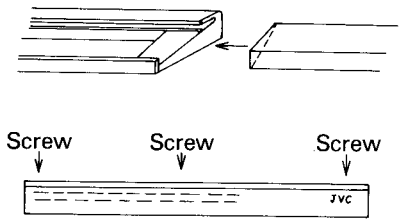
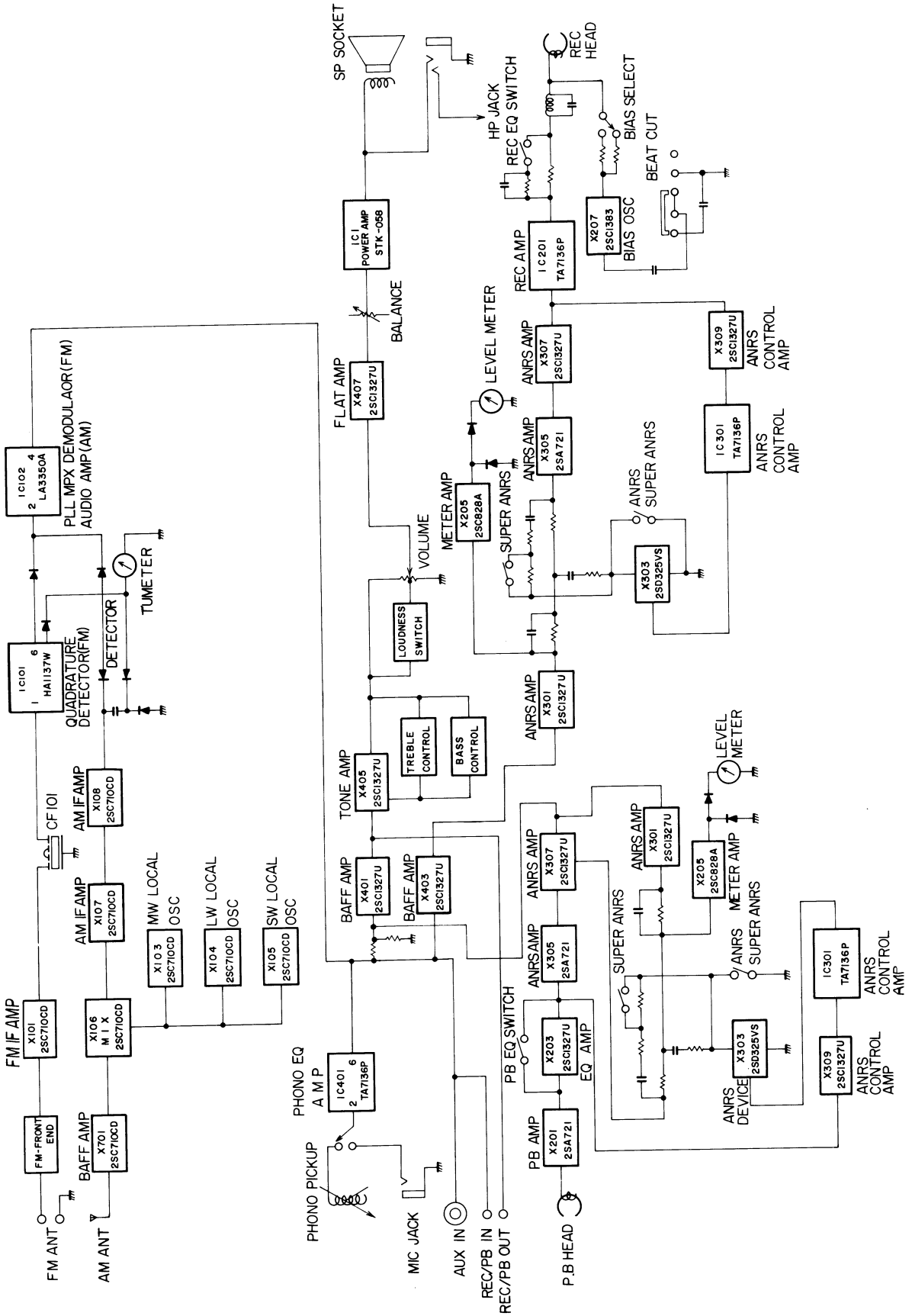


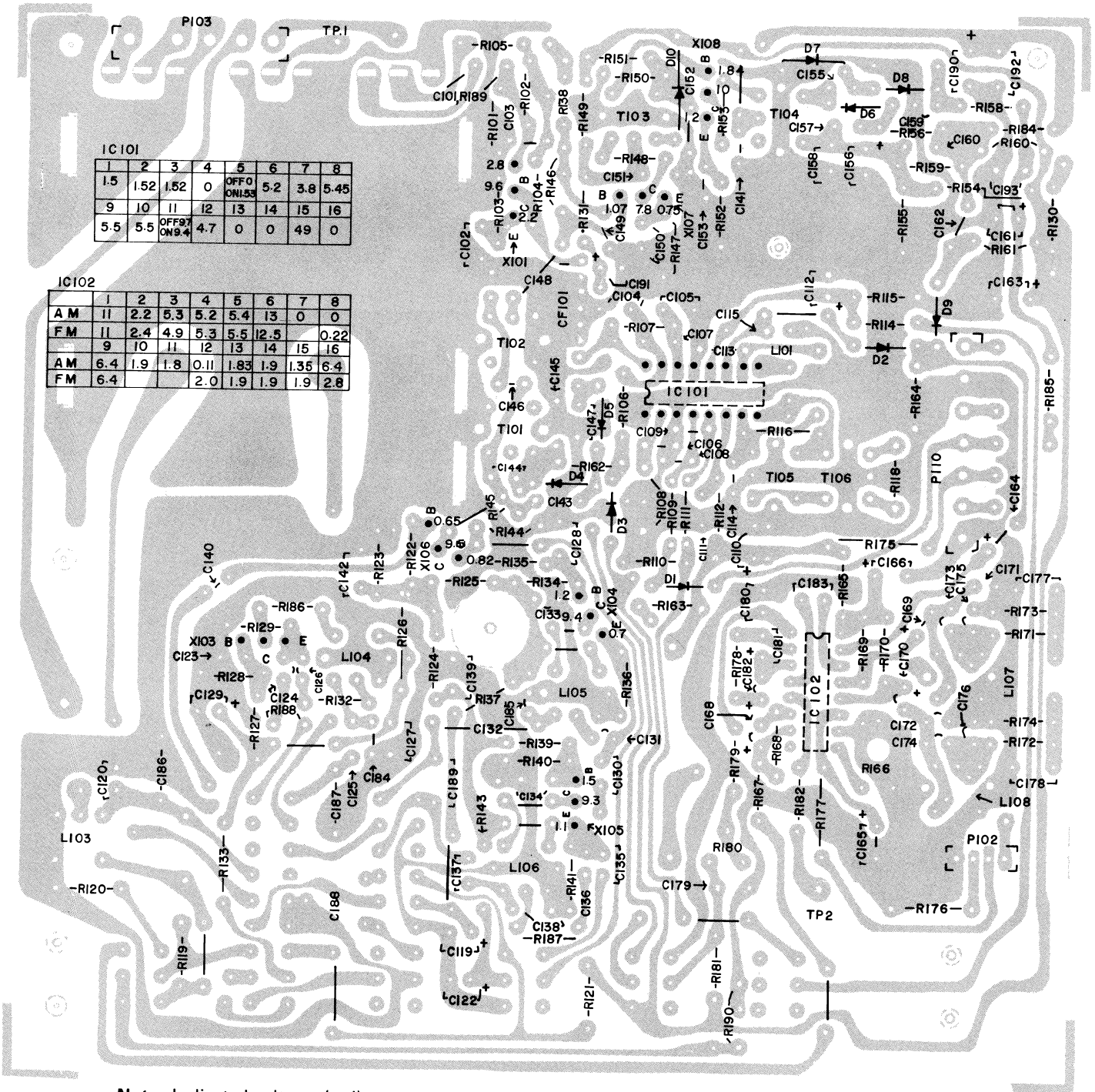
Fig. 33

Block Diagram



Circuit Board Parts

Tuner Circuit Board



IC101

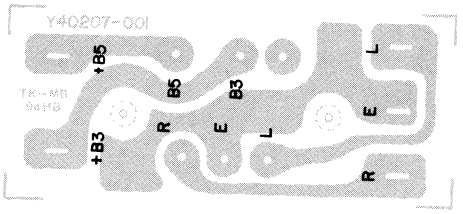
1	2	3	4	5	6	7	8
1.5	1.52	1.52	0	OFF 0 ON 1.53	5.2	3.8	5.45
9	10	11	12	13	14	15	16
5.5	5.5	OFF 9.7 ON 9.4	4.7	0	0	49	0

IC102

	1	2	3	4	5	6	7	8
AM	11	2.2	5.3	5.2	5.4	13	0	0
FM	11	2.4	4.9	5.3	5.5	12.5		0.22
	9	10	11	12	13	14	15	16
AM	6.4	1.9	1.8	0.11	1.83	1.9	1.35	6.4
FM	6.4			2.0	1.9	1.9	1.9	2.8

Note: Indicated voltages (red) are measured with a 20 k ohms/V circuit-tester.

Record Player Connector



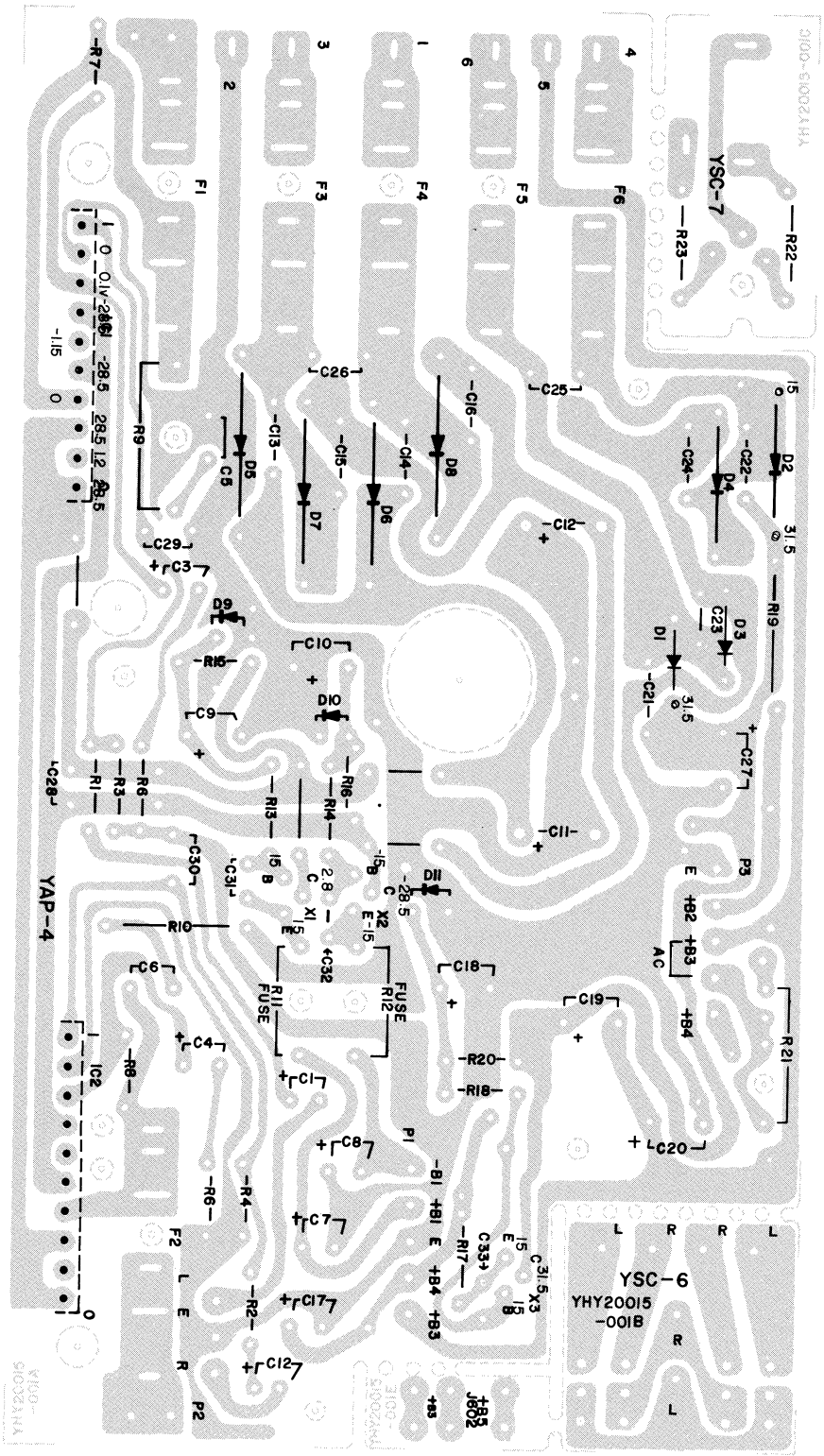
Tuner ass'y

Ref. No.	Parts No.	Parts Name	Remarks	Q'ty
	*YHY20016-001	Circuit board	Tuner	1
				1
P103	QMC0529-001	Plug ass'y	Ant. socket	1
FM RF section				
	*Y00023-001	FM front end		1
	E43727-002	Tab	FM – IF T.P.	1
R105	QRD181J-101	C. resistor	100	1
FM IF section				
X101	2SC710CD	Si. transistor		1
IC101	*HA1137W	Integrated circuit	FM – IF	1
D1, D2	1S2473	Si. diode		2
CF101	*E03609-001	Ceramic filter		1
T105 (Dete-1)	*YSNY1719-001	FM, IFT		1
T106 (Dete-2)	*YSNY1720-001	FM, IFT		1
L101	*YQV30105-180	Inductor	18μH	1
C112	QEB41EM-105	E. cap	1μ/25V (Low look)	1
C110	QEW41CA-107	"	100μ/16V	1
C104, 105, 107, 109, 111, 114	QCF11HP-203	Fixed ceramic capacitor	0.02	6
C113	QCF11HP-473	"	0.047	1
C101, 102, 103, 106, 108	QCF11HP-103	"	0.01	5
C115	QCS11HJ-330	"	33p	1
R106	QRD181J-474	C. resistor	470k	1
R108	QRD181J-104	"	100k	1
R115	QRD181J-563	"	56k	1
R110	QRD181J-473	"	47k	1
R189	QRD181J-181	"	180	1
R109, 114	QRD181J-223	"	22k	2
R113	QRD181J-822	"	8.2k	1
R102	QRD181J-682	"	6.8k	1
R116	QRD181J-392	"	3.9k	1
R101	QRD181J-272	"	2.7k	1
R111	QRD181J-222	"	2.2k	1
R118	QRD181J-182	"	1.8k	1
R103	QRD181J-102	"	1k	1
R104, 107	QRD181J-331	"	330	2
R112	QRG016J-151	O.M.F. resistor	150	1
R117	QRD141J-0R0	Jumping resistor		1
AM RF section				
S101–106	*QSP0269-103	Push switch		1
X103–106	2SC710CD	Si. transistor		4
L103	Y00045-001	SW antenna coil		1
L104	TBC298403-01M	SW OSC coil		1
L105	E03079-13M	MW OSC coil		1
L106	E03079-18M	LW OSC coil		1
C186, 187	*QAT2001-002	Trimmer capacitor		2
C122, 129, 119	QEW41CA-336	E. capacitor	33μ/16V	3
C130, 131, 135	QFM41HK-103	M. capacitor	0.01	3
C136	QFM41HK-103	"	0.01	1
C126	QFM41HK-222	"	0.0022	1
C124	QFM41HK-472	"	0.0047	1
C123	QFM41HK-103	"	0.01	1
C128	QFM41HK-103	"	0.01	1
C188, 189	QAT2002-001	"		2
C122, 129, 119	QEW41CA-336	E. capacitor	33μ/16V	3

Ref. No.	Parts No.	Parts Name	Remarks	Q'ty
C134	QFM41HK-103	M. capacitor	0.01	1
C125	QFS41HJ-332	P. capacitor	3300p	1
C132	QCS11HJ-331	Fixed ceramic capacitor	330p	1
C137	QCS11HJ-181	"	180p	1
C138	QCS11HJ-820	"	82p	1
C118	QCS11HJ-330	"	33p	1
C184	QCS11HJ-5R0	"	5p	1
C185	QCS11HJ-100	"	10p	1
C120	QCS11HJ-100	"	10p	1
C127, 133, 139, 140, 142	QCF11HP-103	"	0.01	5
R125, 126, 139	QRD181J-473	C. resistor	47k	3
R122, 123	QRD181J-153	"	15k	2
R124	QRD181J-683	"	68k	1
R134	QRD181J-333	"	33k	1
R127	QRD181J-682	"	6.8k	1
R188	QRD181J-101	"	100	1
R128	QRD181J-822	"	8.2k	1
R132, 187	QRD181J-220	"	22	2
R133, 121	QRD181J-561	"	560	2
R119	QRD181J-472	"	4.7k	1
R135	QRD181J-562	"	5.6k	1
R144	QRD181J-222	"	2.2k	1
R140	QRD181J-123	"	12k	1
R143	QRD181J-681	"	680	1
R129, 136, 137, 141	QRD181J-102	"	1k	4
R186	QRD181J-470	"	47	1
R120	QRD181J-471	"	470	1
R145	QRD181J-181	"	180	1
	QRD141J-0R0	Jumping resistor		4
AM IF section				
X107, 108	2SC710CD	Si. transistor		2
D4–8, D10	1S188FM	Ge. diode		6
D3, 9	1S2473	Si. diode		2
T101	*Y00047-001	AM IFT		1
T102	*Y00048-001	"		1
T103	*Y00044-001	"		1
T104	*Y00042-001	"		1
C163	QEW41CA-107	E. capacitor	100μ/16V	1
C156	QEW41CA-476	"	47μ/16V	1
C161, 190	QEB41EM-105	E. capacitor (low leek)	1μ/25V (Low leek)	2
C191	QEB41EM-335	L.L.C.E. capacitor	33μ/25V	1
C157, 160	QFM41HK-103	M. capacitor	0.01	2
C143	QFM41HK-103	"	0.01	1
C162	QFM41HK-823	"	0.082	1
C145, 152	QCF11HP-403	Fixed ceramic capacitor	0.04	2
C141, 150, 151, 153, 192	QCF11HP-203	"	0.02	5
C149, 147, 158, 159, 193	QCF11HP-103	"	0.01	5
C148	QCF11HP-102	"	1000p	1
C144	QCT05PH-471	"	470p	1
C146	QFM41HK-562	"	0.0056	1

Ref. No.	Parts No.	Parts Name	Remarks	Q'ty
C155	QCS11HJ-151	Fixed ceramic capacitor	0.00015	1
R160	QRD181J-224	C. resistor	220k	1
R185, 147, 152	QRD181J-471	"	470	3
R183	QRD181J-104	"	100k	1
R149	QRD181J-152	"	1.5k	1
R161	QRD181J-823	"	82k	1
R158	QRD181J-122	"	1.2k	1
R159	QRD181J-472	"	4.7k	1
R151, 154	QRD181J-103	"	10k	2
R162	QRD181J-100	"	10	1
R184	QRD181J-223	"	22k	1
R131	QRD181J-101	"	100	1
R138, 150, 155	QRD181J-222	"	2.2k	3
R130, 146	QRD181J-102	C. resistor	1k	2
R156	QRD181J-561	"	560	1
R148, 153	QRD181J-181	"	180	2
	E43727-002	Tab		1
	QRD141J-0R0	Jumping resistor		1
MPX section				
	LA3350A	Integrated circuit		1
L107, 108	*Y00046-393	Variable inductor		2
C164, 169, 170	QEB41EM-335	E. capacitor (low leek)	3.3μ/25V	3
C168	QEB41EM-105	"	1μ/25V	1
C182	QEB41EM-474	"	0.47μ/25V	1
C181	QEB41EM-224	"	0.22μ/25V	1
C180	QFS41HJ-152	P. capacitor	1500p	1
C183	QFM41HK-473	M. capacitor	0.047	1
C177, 178	QFM41HJ-682	M "	0.0068	2
C175, 176	QFM41HJ-562	"	0.0056	2
C171, 172, 173, 174	QFM41HJ-182	"	0.0018	4
C179	QCF11HP-103	C. capacitor	0.01	1
C165, 166	QEW41CA-107	E. capacitor	100μ/16V	2
R180	*QVP4A0B-472	Variable resistor	4.7k	1
R166	QVP8A0B-052	"	500	1
R177	QRG016J-391	O.M.F. resistor	390	1
R164	QRD181J-154	C. resistor	150k	1
R173, 174, 182	QRD181J-104	"	100k	3
R168	QRD181J-393	"	39k	1
R181	QRD181J-223	"	22k	1
R167	QRD181J-562	"	5.6k	1
R190	QRD181J-472	"	4.7k	1
R179	QRD181J-822	"	8.2k	1
R169, 170	QRD181J-682	"	6.8k	2
R178, 171, 172	QRD181J-332	"	3.3k	3
R163	QRG016J-221	O.M.F. resistor	220	1
R165	QRG016J-101	"	100	1
R176	QRG016J-561	"	560	1
R175	QRZ0040-470	Fuse resistor	⚠	1
P102	YMV4010-004	Plug ass'y		1
P101	E03628-7	"		1
	Y00043-001	Bar ant. coil		1
	*YHO40172-001	Bar ant. bracket (R)		1
	*YHO40173-001	" (L)		1
	LPSP3006ZS	Screw	Bar ant. holder	2

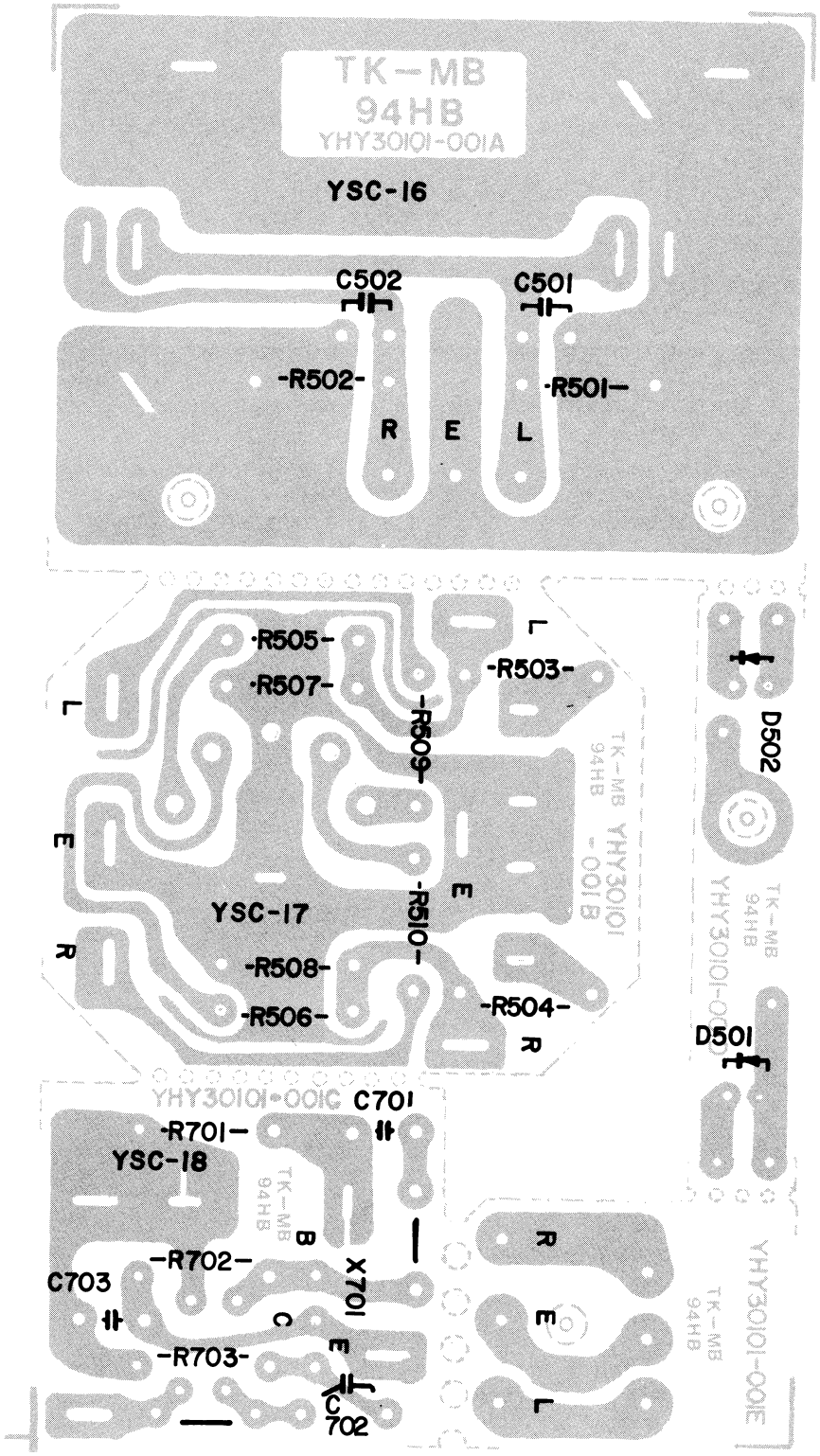
Power Circuit Board



Note: This figure includes Headphone jack, Speaker select switch and Connector circuit boards. Indicated voltages (red) are measured with a 20 k ohms/V circuit-tester.

Ref. No.	Parts No.	Parts Name	Remarks	Q'ty
	*YHY20015-001	Circuit board	Power amp.	1
				1
	*YHY20015-001A	Circuit board		
	*YXH40194-001	Heet sink		1
	YMG30042-002	Fuse holder		8
X1, 3	*2SD325E	Si. transistor		2
X2	*2SB511E	"		1
D5–8	*30D2-B	Si. diode		4
D1–4	10E1	"		4
D9–11	*WZ-157	Zener diode		3
C11, 12	*QEW71VH-478	E. Capacitor	4700μ	2
C9, 10	QEW41VA-477	"	470μ	2
C19, 20	QEW41EA-108	"	1000μ/25V	2
C18, 27	QEW41VA-477	"	470μ	2
C17	QEW41EA-107	"	100μ/25V	1
C7, 8	QEW41EA-227	"	220μ/25V	2
C25, 26	QFM42DM-104	M. capacitor	0.01	2
C13–16, 21–24	QCF12HP-103	Fixed ceramic capacitor	0.01	8
R11, 12	QRZ0041-100	Fuseble resistor	⚠	2
R19	QRG026J-821	O.M.F. resistor	820	1
R17	QRX016J-100	M.F. resistor	10	1
R21	QDG026J-121	O.M.F. resistor	120	1
R15, 16	QRD181J-222	C. resistor	2.2k	2
R20	QRD181J-222	"	2.2k	1
R13, 14, 18	QRD181J-330	"	33	3
C31–33	QCF11HP-103	Fixed ceramic resistor	0.01	3
P2	E03628-3	Plug ass'y		1
IC1, 2	*STK-058	Integrated circuit		2
F1, 2	YMG30042-002	Fuse holder		4
R22, 23	QRG016J-331	O.M.F. resistor	330	2
R9, 10	QRX026J-4R7	M.F. resistor	4.7	2
C3, 4	QEW41VA-107	E. capacitor	100	2
C1, 2	QEB41EM-224	E. capacitor (Low leek)	0.22/25V	2
C29, 30	QCS11HK-101	Fixed ceramic capacitor	100p	2
C5, 6	QFM41HK-473	M. capacitor	0.047	2
R3, 4, 7, 8	QRD181J-563	C. resistor	56k	4
R1, 2	QRD181J-222	"	2.2k	2
R5, 6	QRD181J-471	"	470	2
C28	QCF12HP-203	Fixed ceramic capacitor	0.02p	1
	QRD181J-0R0	Jumping resistor		4
P1	E03628-5	Plug ass'y		1
P3	E03628-5	"		1
				1
	*YHY20015-001B	Circuit board		
S3	*QSP0229-005	Push switch	Speaker SW	1
				1
	*YHY20015-001C	Circuit board		
	*QMS6302-015	Head phone jack		1
			Phono	1
	*YHY20015-001E	Circuit board		
J602	QMC0359-001	Socket ass'y		1
	*YXH30103-001	Heet sink		1
	*YHJ40201-001	Bracket		1

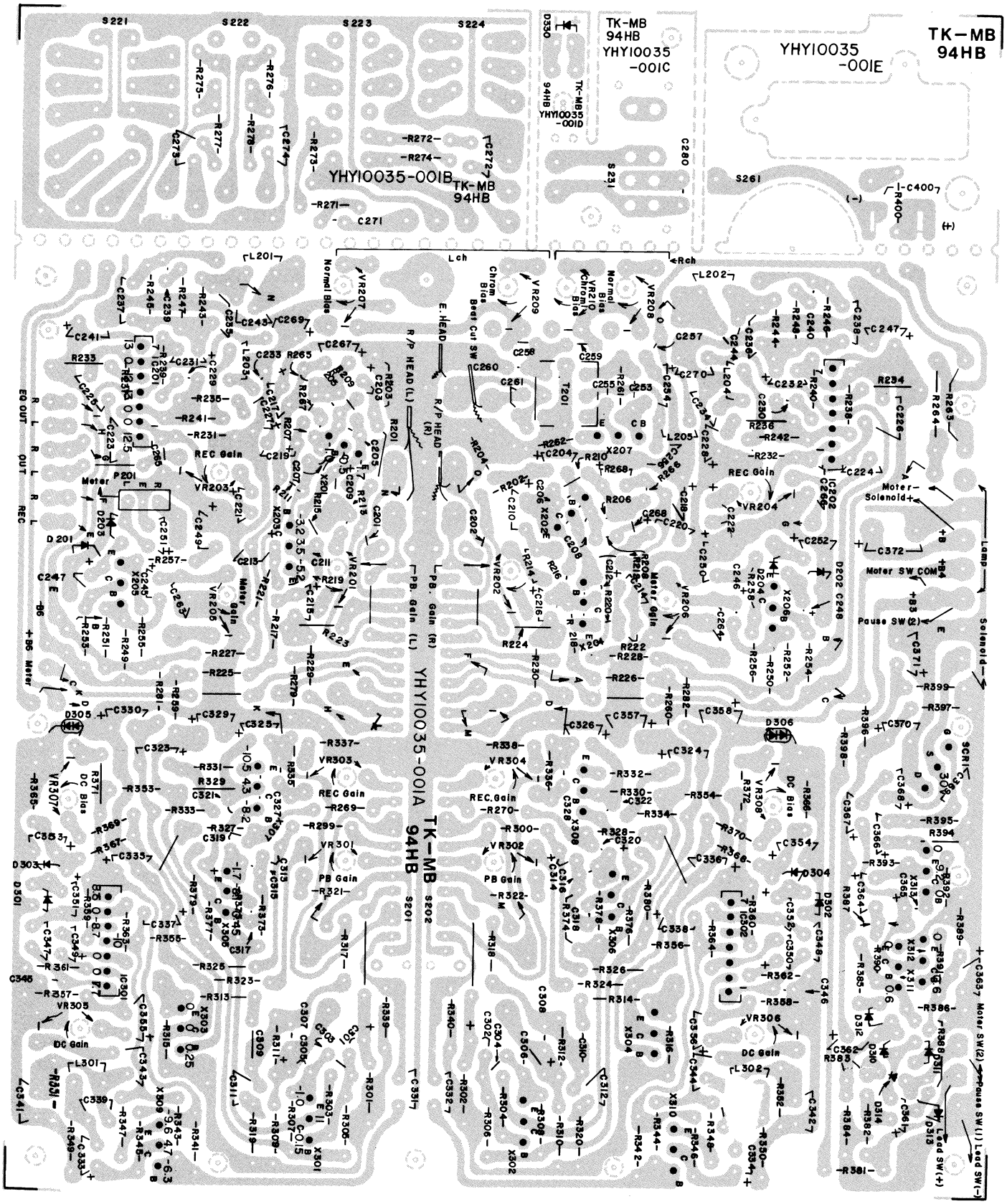
Jack Circuit Board Ass'y



Jack C.B. ass'y

Ref. No.	Parts No.	Parts Name	Remarks	Q'ty
	YHY30101-001	Circuit board	Jack	1
				1
	YHY30101-001A	Circuit board		
	QMS6303-006	Mic jack		2
C501, 502	QFM41HK-272	M. capacitor	0.0027	2
R501, 502	QRD181J-103	C. resistor	10k	2
			Mic	1
	YHY30101-001E	Circuit board		
P501	E03628-3	Plug ass'y		1
				1
	YHY30101-001B	Circuit board		
	YMV30098-001	DIN jack ass'y		1
R505, 506	QRD181J-683	C. resistor	68k	2
R503, 504	QRD181J-473	C. resistor	47k	2
R509, 510	QRD181J-473	"	47k	2
R507, 508	QRD181J-333	"	33k	2
				1
	YHY30101-001C	Circuit board		
X701	2SC710CD	Si. transistor		1
R702	QRD181J-564	C. resistor	560k	1
R703	QRD181J-822	"	8.2k	1
R701	QRD181J-152	"	1.5k	1
C701, 703	QCF11HP-393	Fixed ceramic capacitor	0.039	2
C702	QCS11HK-471	"	470p	1
	YSC-14	L.E.D. C.B. ass'y		1
	YHY30101-001D	Circuit board		
D501, 502	SR103D	L.E.D.		2
J102	YMV30059-004	Socket ass'y		1

Cassette Circuit Board



Note: Indicated voltages (red) are measured with a 20 k ohms/V circuit-tester.
This figure includes five circuit boards used in the cassette unit.

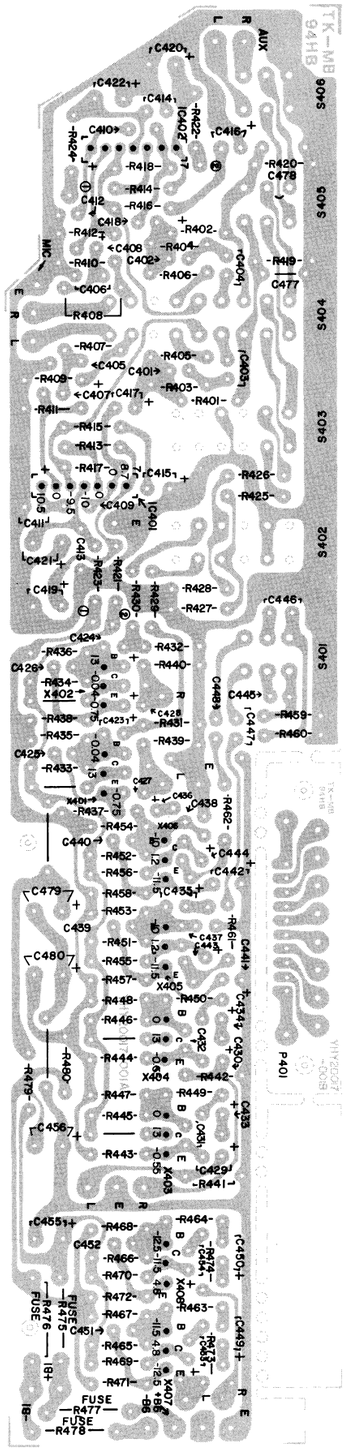
Ref. No.	Parts No.	Parts Name	Remarks	Q'ty
	YHY10035-001	Circuit board	Cassette	1
				1
	YHY10035-001A	Circuit board	Rec/PB	
P.B. E.Q. section				
X201, 202	2SA721S	Si. transistor		2
X203, 204	2SC1327U	"		2
VR201, 202	QVP8A0B-052	Variable resistor		2
C209, 210	QEB41EM-336M	E. capacitor (low leek)	33μ/25V	2
C215, 216	QEW41CA-106	E. capacitor	10μ/16V	2
C203, 204	QEE41EM-335M	E. capacitor (tant. solid)	33μ/25V	2
C267, 268, 217–220	QEW41AA-107	E. capacitor	100μ/10V	6
C213, 214	QEW41AA-476	"	47μ/10V	2
C201, 202	QCS11HK-561	Fixed ceramic capacitor	560p	2
C207, 208	QCS11HK-101	"	100p	2
C205, 206	QCS11HK-101	"	100p	2
C211, 212	QCS11HK-270	"	27p	2
R215, 216	QRD181J-105	C. resistor	1M	2
R207, 208	QRD181J-684	"	680k	2
R203, 204	QRD181J-104	"	100k	2
R205, 206	QRD181J-104	"	100k	2
R265, 266	QRD181J-823	"	82k	2
R211, 212	QRD181J-683	"	68k	2
R267, 268	QRD181J-563	"	56k	2
R223, 224, 209, 210	QRD181J-103	"	10k	4
R225–228	QRD181J-822	"	8.2k	4
R217, 218	QRD181J-682	"	6.8k	2
R221, 222	QRD181J-472	"	4.7k	2
R201, 202	QRD181J-102	C "	1k	2
R229, 230	QRD181J-101	"	100	2
R213, 214	QRD181J-470	"	47	2
R219, 220	QRD181J-100	"	10	2
Meter amp. section				
X205, 206	2SC828A-ST	Si. transistor		2
D201–204	1S188FM	Ge. diode		4
VR205, 206	QVP8A0B-024	Variable resistor		2
C247, 248	QEB41EM-105	E. capacitor (low leek)	1μ/25V	2
C245, 246	QEB41EM-224	"	0.22μ/25V	2
C249, 250	QEW41CA-107	E. capacitor	100μ/16V	2
C251, 252	QEW41EA-335	"	3.3μ/25V	2
C263, 264	QFM41HK-102	M. capacitor	0.001	2
R249, 250	QRD181J-564	C. resistor	560k	2
R251, 252	QRD181J-473	"	47k	2
R253, 254	QRD181J-682	"	6.8k	2
R255, 256	QRD181J-102	"	1k	2
R257, 258	QRD181J-330	"	33	2
R279	QRD181J-681	"	680	1
	QRD181J-0R0	Jumping resistor		1
Record amp. section				
IC201, 202	TA7136P	Integrated circuit		2
VR203, 204	QVP8A0B-024	Variable resistor		2
L201, 202	TAC000324-05	Inductor	33mH	2
L203, 204	TAC000324-01	"	1mH	2
C227, 228	QEB41EM-475	E. capacitor (low leek)	4.7μ/25V	2

Ref. No.	Parts No.	Parts Name	Remarks	Q'ty
C221, 222	QEB41EM-224	E. capacitor (low leek)	0.22μ/25V	2
C241, 242, 269, 270	QEW41CA-107	E. capacitor	100μ/16V	4
C239, 240	QCS11HJ-561	Fixed ceramic capacitor		2
C243, 244	QCS11HJ-241	"		2
C237, 238	QCS11HJ-221	"		2
C223, 224	QCS11HJ-470	"		2
C225, 226	QCS11HJ-100	"		2
C229, 230	QFM41HJ-682	M. capacitor	0.0068	2
C233, 234	QFM41HJ-472	"	0.0047	2
C235, 236	QFM41HJ-102	"	0.001	2
C265, 266	QFM41HJ-102	"	0.001	2
R247, 248	QRD181J-274	C. resistor	270k	2
R239, 240	QRD181J-224	"	220k	2
R237, 238	QRD181J-184	"	180k	2
R231, 232, 233, 234	QRD181J-104	"	100k	4
R245, 246	QRD181J-563	"	56k	2
R243, 244	QRD181J-273	"	27k	2
R235, 236	QRD181J-222	"	2.2k	2
R241, 242	QRD181J-681	"	680	2
	QRD181J-0R0	Jumping resistor		1
OSC circuit section				
X207	2SC1383S	Si. transistor		1
T201	YTR40197-001	OSC transformer		1
L205	TAC000324-03	Inductor		1
VR207, 208	QVP8A0B-025	Variable resistor	2M	2
VR209, 210	QVP8A0B-015	"	1M	2
C260	QFS42BJ-332	Polystyrol capacitor	3200p (125V)	1
C255	QFZ0001-103	P.L. capacitor	10000p	1
C253	QFM42AK-223	M. capacitor	0.022 (100V)	1
C261, 262, 280	QFM42AK-153	"	0.015 (100V)	
C254	QFM42AK-102	"	(100V)	1
C257	QFM41HK-103	"	0.01	1
C256	QEW41HA-105	E. capacitor	1μ/50V	1
C258, 259	QCS11HJ-331	Fixed ceramic capacitor	330p (100V)	2
R261	QRD181J-563	C. resistor	56k	1
R262	QRD181J-330	"	33	1
R264	QRG026J-470	O.M.F. resistor	47 (2W) ⚠	1
R263	QRG016J-221	"	220	1
	E43727-002	Tab		2
J401	YMV30059-096	Socket ass'y		1
S201, 202	QSS9201-003	Slide switch	Rec/PB	2
Auto stop circuit section				
SCR1	2SF656	Silicon Control Rectifier		1
X310–312	2SC828A-ST	Si. transistor		3
D310–314	1S188FM	Ge. diode		5
C372	QEW41VA-477	E. capacitor	470μ/35V	1
C371	QEW41EA-227	"	220μ/25V	1
C370	QEW41CA-227	"	220μ/16V	1
C362	QEW41CA-107	"	100μ/16V	1
C361	QEW41CA-476	"	47μ/16V	1
C364	QEW41CA-476	"	47μ/16V	1
C363	QEW41EA-475	"	4.7μ/25V	1
C365	QEW41EA-335	"	3.3μ/25V	1
C366, 367, 368	QEB41EM-105	E. capacitor (low leek)	1μ/25V	3
C369	QCF11HP-103	Fixed ceramic capacitor	0.01p	1
R388, 391	QRD181J-104	C. resistor	100k	2
R392	QRD181J-823	"	82k	1

Ref. No.	Parts No.	Parts Name	Remarks	Q'ty
R386, 389	QRD181J-563	C. resistor	56k	2
R384	QRD181J-333	"	33k	1
R383, 399	QRD181J-103	"	10k	2
R387, 393	QRD181J-472	"	4.7k	2
R385, 394	QRD181J-272	"	2.7k	2
R397	QRD181J-222	"	2.2k	1
R381, 382, 395	QRD181J-102	"	1k	3
R396	QRD181J-821	"	820	1
R390	QRD181J-100	"	10	1
R398	QRD141J-561	"	560	1
	QRD181J-0R0	Jumping resistor	OSC +B	1
ANRS circuit section				
IC301, 302	TA7136P	Integrated circuit		2
X305, 306	2SA721S	Si. transistor		2
X301,302,307,308	2SC1327U	"		4
X309, 310	2SC828A-ST	"		2
X303, 304	2SD545VS-NP	"		2
D301–304	1S188FM	Ge. diode		4
D305, 306	VD1212	Varistor		2
C331, 332	QFM41HK-333	M. capacitor	0.033	2
C309, 310	QFM41HJ-104	"	0.1	2
C307, 308	QFM41HJ-223	"	0.022	2
C311, 312	QFM41HJ-183	"	0.018	2
C341, 342	QFM41HJ-222	"	0.0022	2
VR305, 306	QVP8A0B-024	Variable resistor	20k	2
VR301,302,303,304	QVP8A0B-053	"	5k	4
VR307, 308	QVP8A0B-023	"	2k	2
L301, 302	TAC000324-05	Inductor		2
C319, 320	QEE41EM-335M	E. capacitor (tant. solid)	3.3μ/25V	2
C313, 314	QEE41EM-105M	"	1μ/25V	2
C325,326, 305,306	QEB41EM-335	E. capacitor (low leek)	3.3μ/25V	4
C355,356, 301,302	QEB41EM-105	"	1μ/25V	4
C353,354, 351,352	QEB41EM-105	"	1μ/25V	4
C343, 344	QCS11HJ-471	Fixed ceramic capacitor	470p	2
C339, 340	QCS11HJ-241	"	240p	2
C345, 346	QCS11HJ-470	"	47p	2
C347, 348	QCS11HJ-100	"	10p	2
C303,304, 315,316	QCS11HK-471	"	470p	4
C317, 318, 327,328	QCS11HK-101	"	100p	4
C321, 322	QCS11HK-681	"	680p	2
C329,330, 357,358	QEW41CA-227	E. capacitor	220μ/16V	4
C335,336, 337,338	QEW41CA-476	"	47μ/16V	4
C333, 334	QEW41EA-475	"	4.7μ/25V	2
C349, 350	QEW41HA-105	"	1μ/50V	2
C323, 324	QEW41AA-476	"		2
R341, 342	QRD181J-684	C. resistor	680k	2
R373, 374	QRD181J-474	"	470k	2
R375,376, 377,378	QRD181J-334	"	330k	4
R311, 312	QRD181J-274	"	270k	2
R303,304, 305,306	QRD181J-154	"	150k	4
R363, 364	QRD181J-124	"	120k	2
R327,328, 359,360	QRD181J-823	"	82k	4
R325, 326	QRD181J-683	"	68k	2
	QRD181J-563	"	56k	2
R301, 302, 309, 310, 379, 380 R339,340, 343,344	QRD181J-473	"	47k	10
R357, 358, 367, 368, 369, 370	QRD181J-473	"	47k	6

Ref. No.	Parts No.	Parts Name	Remarks	Q'ty
R365, 366	QRD181J-333	C. resistor	33k	2
R351, 352	QRD181J-223	"	22k	2
R321,322,335,336	QRD181J-183	"	18k	4
R307,308,349,350	QRD181J-123	"	12k	4
R315, 316	QRD181J-562	"	5.6k	2
R371, 372	QRD181J-472	"	4.7k	2
R345, 346	QRD181J-392	"	3.9k	2
R317, 318	QRD181J-332	"	3.3k	4
R323,324,337,338	QRD181J-222	"	2.2k	4
R333, 334	QRD181J-182	"	1.8k	2
R269,270,299,300	QRD181J-102	"	1k	4
R347, 348, 353, 354, 355, 356	QRD181J-561	"	560	6
R361, 362	QRD181J-391	"	390	2
R259,260,281,282	QRD141J-331	"	330	4
R319, 320	QRD181J-181	"	180	2
R331, 332	QRD181J-101	"	100	2
R313, 314	QRD181J-100	"	10	2
	QRD181J-0R0	Jumping resistor	2	2
	QRD141J-0R0	"		2
	YHY10035-001B	Circuit board		1
S221,222,223,224	QSP0249-104	Push switch		1
C271, 272	QFM41HJ-562	M. capacitor	5.6k	2
C273, 274	QFM41HJ-562	"	5.6k	2
R275, 276	QRD181J-564	C. resistor	560k	2
R271, 272	QRD181J-123	"	12k	2
R273, 274	QRD181J-682	"	6.8k	2
R277, 278	QRD181J-122	"	1.2k	2
	E43727-002	Tab		18
				1
	YHY10035-001C	Circuit board		1
S231	QSS2326-101	Slide switch		1
C280	QFM42AK-153	M. capacitor	0.015	1
Y				1
	YHY10035-001D	Circuit board		
D330	SR103D	Light-Emitting Diode		1
	Y40215-001	Spacer		1
				1
	YHY10035-001E	Circuit board		
S261	TDS271409-01	Lead switch		1
	TER271414-01	Spacer		1
R400	QRD181J-221	C. resistor	220	1
C400	QCF11HP-103	Fixed c. capacitor		1

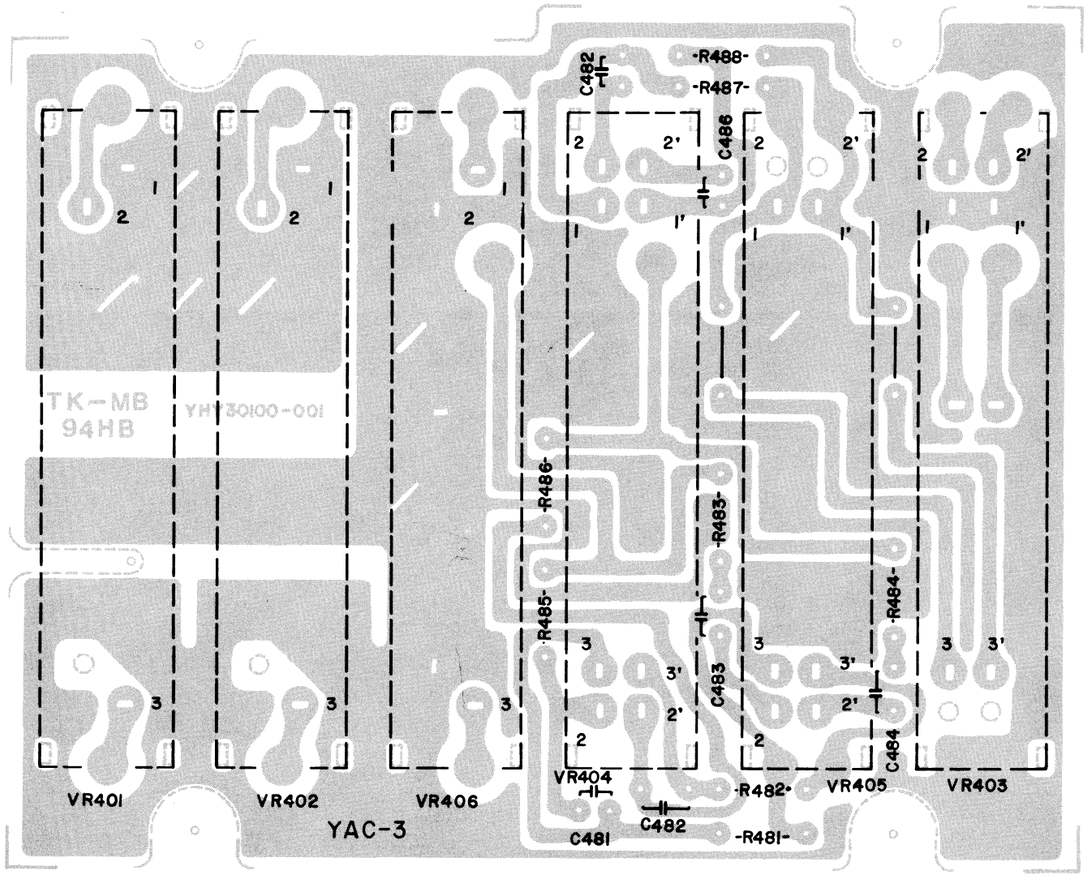
Control Circuit Board



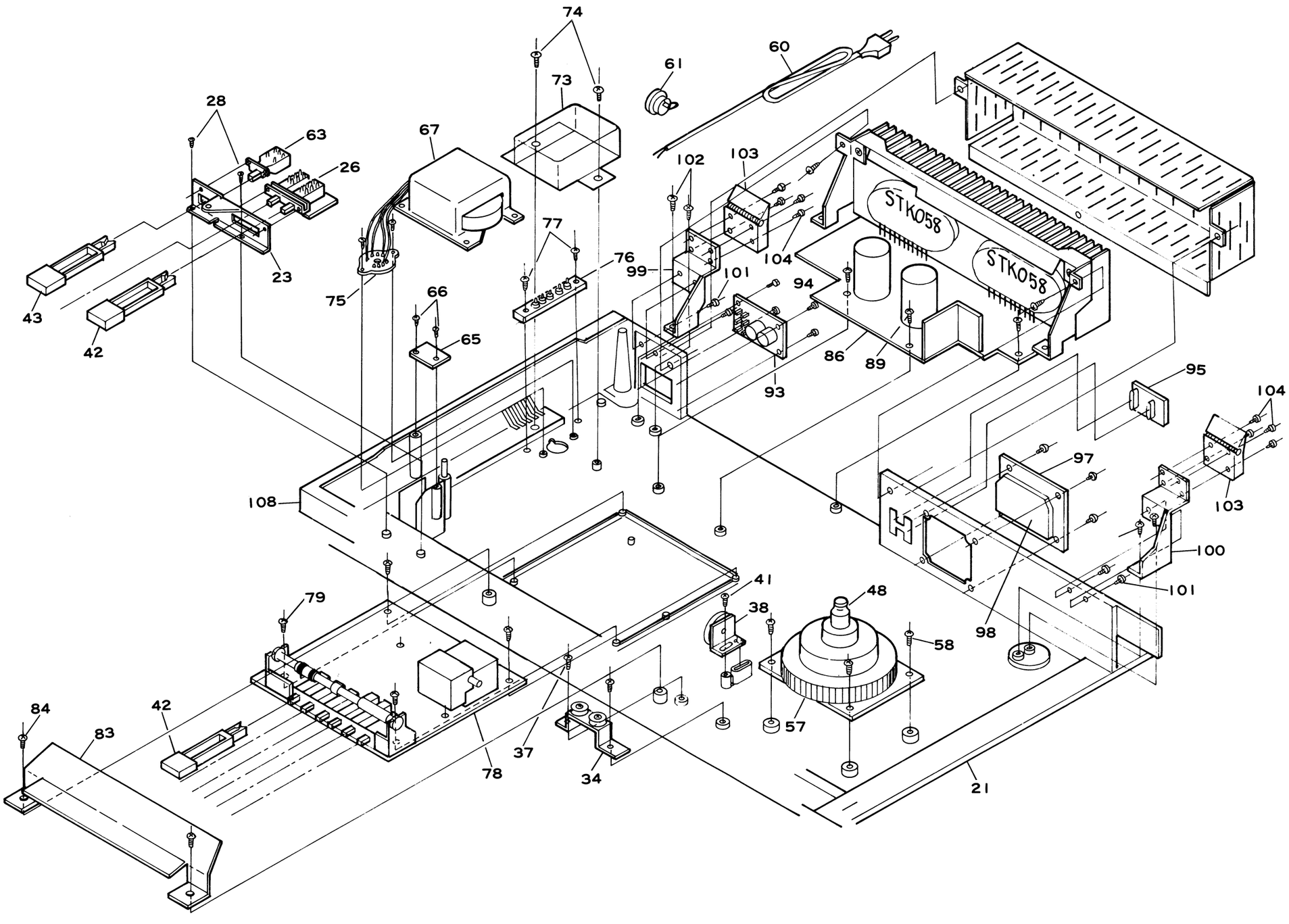
Ref. No.	Parts No.	Parts Name	Remarks	Q'ty
	*YHE30076-001	Control bracket	150	1
				1
	*YHY20017-001		Control	1
S401–406	*QSP0269-102		Source select 151	1
IC401, 402	*TA7136P			2
X401–408	2SC1327U	Si. transistor		8
C415, 416	QEB41EM-106	E. capacitor (Low leek)	10μ/25V	2
C423, 424, 429 435, 436, 430	QEB41EM-105	"	1μ/25V	6
C443, 444	QEB41EM-474	"	0.47μ/25V	2
C417, 418	QEB41EM-334	"	0.33μ/25V	2
C407, 408, 433 454, 434, 449 450, 453	QEB41EM-224	"	0.22μ/25V	8
C479, 480	QEW41CA-227	E. capacitor	220μ/16V	2
C419, 420, 421 422	QEW41CA-107	"	100μ/16V	4
C455, 456	QEW41CA-477	"	470μ/16V	2
C441, 442	QEW41CA-476	"	47μ/16V	2
C427, 428	QEW41EA-335	"	3.3μ/25V	2
C445, 446	QFM41HK-393	M. capacitor		2
C447, 448	QFM41HK-102	"		2
C403, 404	QFM41HJ-273	"		2
C477, 478	QFM41HJ-332	"		2
C401, 402	QFM41HJ-682	"		2
C413, 414, 425 426, 431, 432	QCS11HK-471	Fixed ceramic capacitor		6
C439, 440, 451 452	QCS11HK-471	"		4
C437, 438	QCS11HK-560	"		2
C405, 406	QCS11HJ-101	"		2
C411, 412	QCS11HJ-470	"		2
C409, 410	QCS11HJ-100	"		2
	QCS11HK-331	"		2
R479, 480	QRG016J-470	O.M.F. resistor	47	2
R475, 476, 477 478	QRZ0040-470	Fuseble resistor	⚠	4
R431, 432	QRD181J-105	C. resistor	1M	2
R465, 466	QRD181J-824	"	820k	2
R451, 452	QRD181J-334	"	330k	2
R405, 406	QRD181J-124	"	120k	2
R411, 412, 445 446, 447, 448	QRD181J-224	"	220k	6
R417, 418	QRD181J-154	"	150k	2
R419, 420, 433 434, 435, 436	QRD181J-104	"	100k	6
R413, 414	QRD181J-823	"	82k	2
R441, 442	QRD181J-563	"	56k	2
R409, 410, 439 440, 467, 468	QRD181J-473	"	47k	6
R427, 428, 453 454, 461, 462	QRD181J-333	"	33k	6
R403, 404	QRD181J-123	"	12k	2
R425, 426, 473 474	QRD181J-153	"	15k	4
R443, 444, 437 438	QRD181J-123	"	12k	4
R459, 460, 469 470	QRD181J-103	"	10k	4

Ref. No.	Parts No.	Parts Name	Remarks	Q'ty
R455, 456	QRD181J-682	C. resistor	6.8k	2
R463, 464	QRD181J-101	"	100	2
R407, 408, 401 402	QRD181J-222	"	2.2k	4
R449, 450	QRD181J-152	"	1.5k	2
R421, 422, 423 424, 457, 458 471, 472	QRD181J-102	"	1k	8
R415, 416	QRD181J-821	"	820	2
R429, 430	QRD181J-100	"	10	2
	QRD141J-0R0	Jumping resistor		3
	QRD181J-0R0	"		4
	E43727-002	Tab		20
	SSSP3004ZS	Screw	Push SW	2
J601	E03565-3B0	Socket ass'y	(Mic)	1
J2	E03565-3B0	"	Power (L.R.)	1
J1	E03565-5B0	"	Power	
J602	E03565-3B0	"	(Phono)	1
J101	E03565-7B0	"	Tuner	1
				1
	*YHY30100-001	Circuit board	Vol.	1
VR401, 402	QVT4C2A-015M	Variable resistor	152	2
VR406	QVT4C2W-615M	"	153	1
VR404, 405	QVT5C2B-154M	"	154	2
VR403	QVT5C2B-215M	"	155	1
C485, 486	QFM41HJ-333	M. capacitor		4
C483, 484	QFM41HJ-102	"		2
R481, 482, 487 488	QRD181J-153		15k	4
R485, 486	QRD181J-153		15k	2
R483, 484	QRD181J-123		12k	2
	SSSP3004ZS	Screw	V.R. 156	12
			Cassette	1
	YHY20017-001B	Circuit board		1
P401	*YMV4010-010	Plug ass'y		1
	E43727-002	Tab		10
	E47203-004	Wire clamp		1
	52396	Terminal lug		1
	SBSB3008Z	T. screw	Lug wire clamp	2

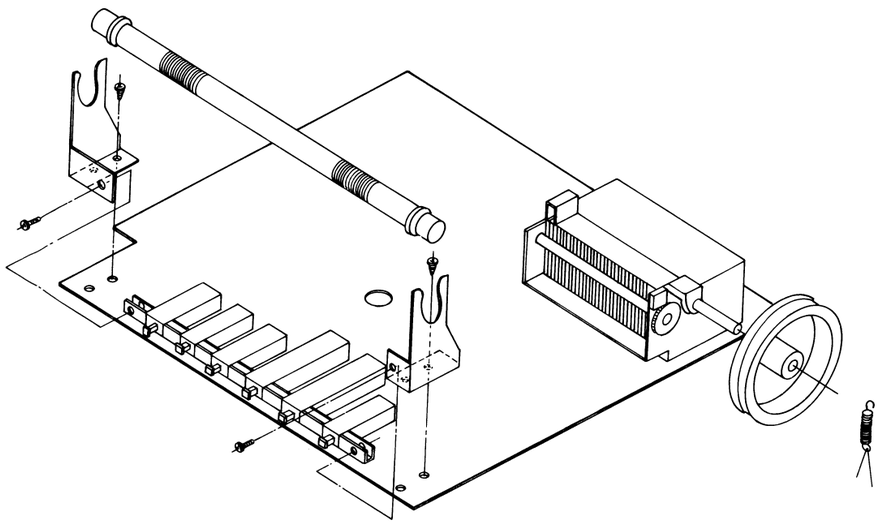
Volume Circuit Board

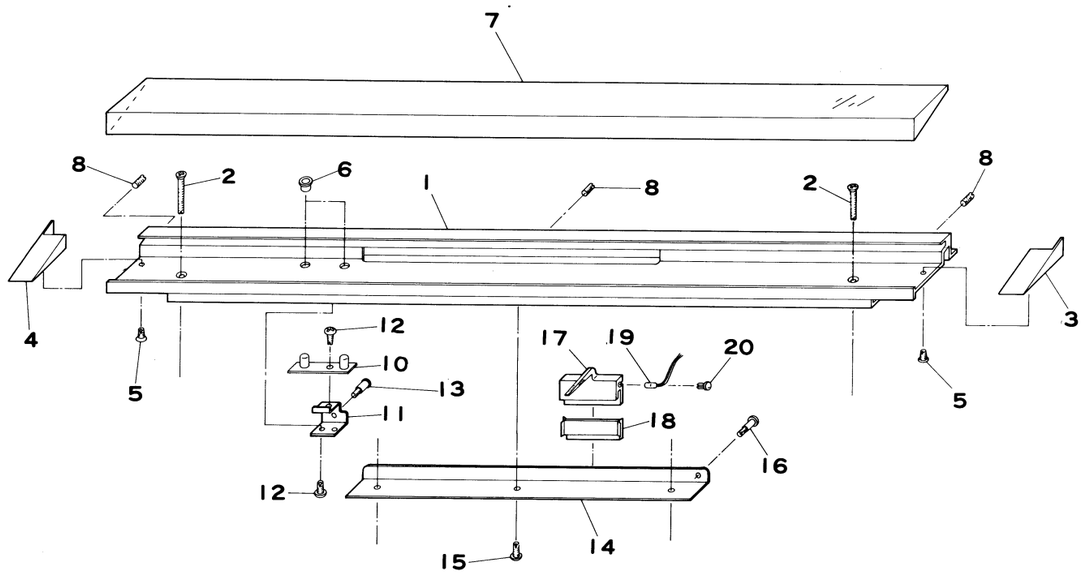


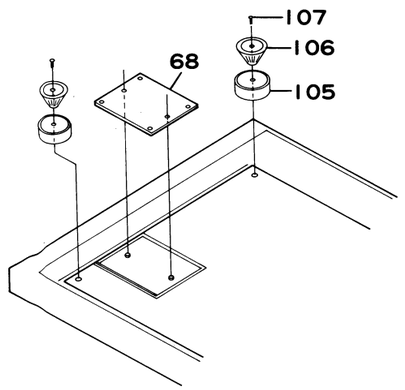
Main Parts Location

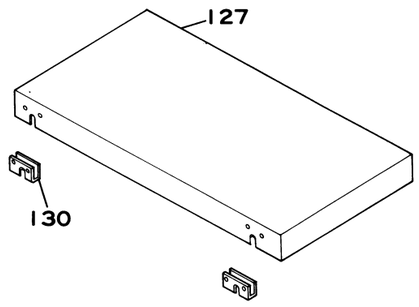


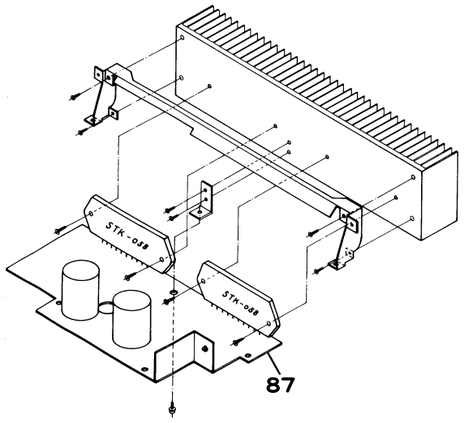
Fitting, Tuner, Power Location

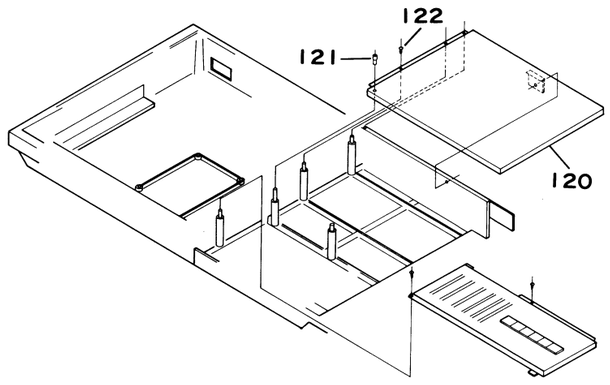










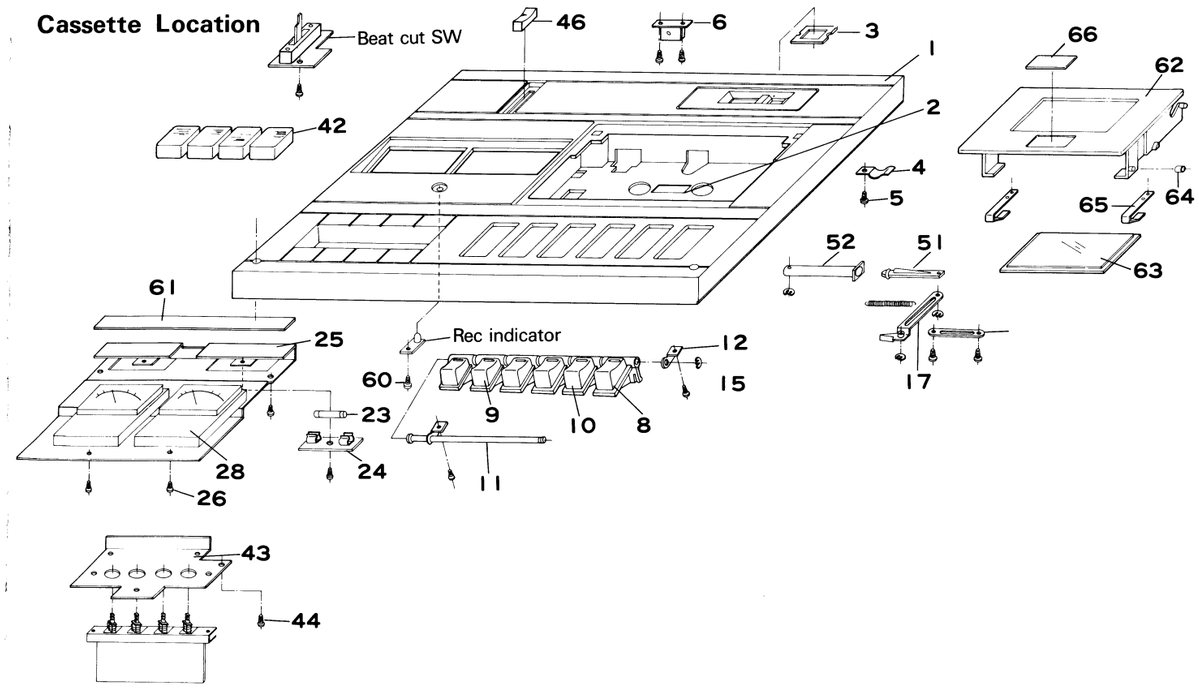


No.	Parts No.	Parts Name	Remarks	Q'ty
1	*YOH10026-001	Fitting		1
2	SHSB3020N	T. screw		2
3	*YOH40163-001	Side fitting	(R)	1
4	*YOH40163-002	"	(L)	1
5	SSSB3006Z	T. screw		2
6	*Y40272-001	Indi. ring		2
		Cement		1 set
7	*YUD10027-001	Dial scale		1
8	TFS3006NS	Set screw		3
9				1
10				
11	*YHJ40155-001	Indi. bracket		1
12	SBSB3006Z	T. screw		2
13	E49447-001	Shaft		1
14	*YWB30072-001	Needle rail		1
15	SBSB3006Z	T. screw		3
16	E49447-001	Shaft		1
17	*YUC30073-001	Needle		1
18	*YZQ40023-004	Spacer	Mylar	1
19	*Y00025-400	Pilot lamp	⚠	1
20	*Y40236-001	Cap		1
21	*YOU10025-001	Bottom case		1
22	*YOC10032-001	Panel plate		1
		D. face tape		1 set
		Cement		1 set
23	*YHJ30075-001	SW. BKT. ass'y		1
24	E49447-001	Shaft		1
25	E45017-001	Roller		1
26				
27	SPSP3008ZS	Screw		2
28	SBSB3008Z	T. screw		3
	E33115-31	Lug. strip ass'y		1
30	SBSB3008Z	T. screw	Lug.	1
31	E50670-005	Wire clamp		10
32	E47203-004	"		4
33	SBSB3008Z	T. screw	Wire clamp	14
34	*YHG40161-001	R. BKT. ass'y		1
35	E49447-001	Shaft		2
36	E45017-001	Roller		2
37	SBSB3008Z	T. screw		2
38	E47316-002	R. bracket ass'y		1
		R. bracket		1
39	E45017-001	Roller		1
40	E45018-001	Shaft		1
41	SBSB3008Z	T. screw		1
42	*YOO40164-001	Pu. knob		8
43	*YOO40164-002	"		1
		Cement		1 set
44				
45	SBSB3008Z	T. screw		1
46				
47	SBSB3008Z	T. screw		4
48	*YKA40176-001	Tuning ass'y		1

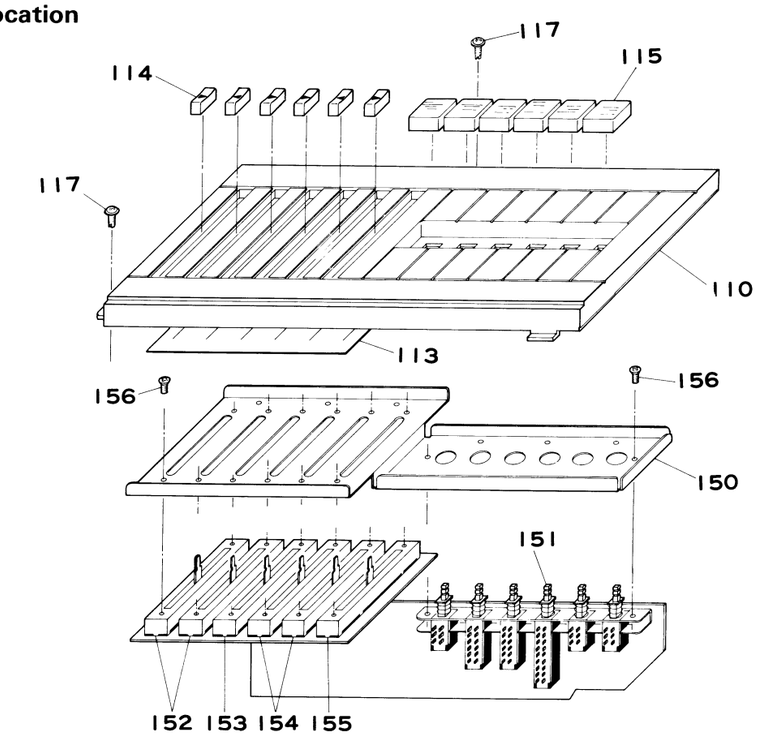
No.	Parts No.	Parts Name	Remarks	Q'ty
49	*YKA40156-001	Tu. shaft ass'y		
50	*YGS40157-001	Tuning shaft		
51	*YKF40159-001	FLY wheel		
52	E60603-001	Thru. bearing		
53	*YGB40158-001	Bushing		
54	*YHH40160-001	Tu. bracket		
55	REE3000	"E" washer		
56	E43323-002	Nut	M9 x 0.75	
		Grees		
57	*YOH30074-002	Knob ass'y	With screw	1
		Cement		1 set
58	SBSB3008M	T. screw	For tuning	4
59	*YXO40004-020	Spacer	For PHONES circuit	1
60	QMP3900-244	Power cord	⚠	1
61	QHS3876-252	Strain relief	⚠	1
62	TLT279401-01	Caution card	Power cord	1
63	QSP2111-011	Pu. switch	For power switch ⚠	1
64	SPSP3008ZS	Screw		2
65	*YXQ40190-001	SW. cover	⚠	1
66	SBSB3008Z	T. screw		2
67	*YTP30096-001	Power trans	⚠	1
68	*YHF40182-001	Trans BKT.		1
69	SBSB3006Z	T. screw		2
70	DPSP4012ZS	Screw		4
71	QMF51A-R50L	Fuse	F5, 6 ⚠	2
72	QMF51A2-3R15L	"	F1, 2, 3, 4 ⚠	4
73	*Y40239-001	Shield cover	⚠	1
74	SBSB3008Z	T. screw		2
75	*Y30122-001	Volt. selector	⚠	1
76	T41479-00B	Terminal board	5P ⚠	1
77	SBSB3008Z	T. screw		4
78				1
79	SBSB3008Z	T. screw	Tu. C.B.	6
80	E33821-002	Dial drum		1
81	Y40276-001	Spring		1
82	Y30131-001	Dial rope	ϕ0.8 black	1 set
		Cement		1 set
83	*YXZ30095-001	Blind	Aluminum	1
84	SBSB3008Z	T. screw		2
85	YXO40004-019	Spacer		1
		Tape	Black 9.5mm(W)	1 set
86				1
87				
88	*YXQ30107-001	Shield board		1
89	SBSB3008N	T. screw		5
90	SPSP3008NS	Screw		2
91	*YOS30079-001	Metal cover		1
92	SBSB3008N	T. screw		3
93	*YMY30097-001	Terminal board	SPK	1
94	SBSB3008N	T. screw		4
95	*QMC0438-001	Ant. jack ass'y	For ANT	1
96				
97	QMC0559-001	Socket ass'y	J103	1
98				
	SBSB3008N	T. screw		4

Ref. No.	Parts No.	Parts Name	Remarks	Q'ty
99	*Y40241-001	Stay bracket		1
100	*YHI40169-001	"		1
101	GPSP3008NS	Screw		4
102	SBSB3008Z	T. screw		4
103	*YJG40170-001	Hinge ass'y		2
104	LPSP3004ZS	Screw		8
105	*Y40243-001	Foot ring		5
106	E46927-003	Foot		5
107	SBSB3016Z	T. screw		5
108	*YZC10028-001	Cabinet		1
109	SBSB3012Z	T. screw		7
110	*YOB20012-002	Cont. panel		1
111				1 set
112	SBSB3008Z	T. screw		6
113	*YXP40167-001	Blind plate		1
		Cement		1 set
114	*YON40166-001	Slide knob		6
115	*YOO40165-001	Pu. knob		6
		Cement		1 set
116	E60119-002	Lid cushion		1
117	GBSB3008Z	T. screw		2
118	*YXQ30108-001	Shield board		1
119	SBSB3008Z	T. screw		2
120				1
121	BYS3020FS	Screw		2
122	GBSB2010N	T. screw		3
123	WNS3000N	Screw		1
124	*SRP-J23	Player unit		1
125	GBSB3012C	T. screw		1
126	Q03091-112	Washer		1
127	*YOT10029-002	Dust cover	With JVC mark	1
128	*YOT10029-001	"		1
129	*YXP40074-002	Plate		1
130	*YHJ40171-001	Lock plate		2
131	SHSP4008NS	Screw		4
132	*YPA30082-111	P. case ass'y		1
133	*YPD10033-001	Cushion		1
134	*YPD10033-002	"		1
135	*YPG30053-003	Envelope		1
136	*YPG30053-004	"		1
137	QPGA040-005	"		1
138	T43758-003	Serial ticket	For T.T.	2
139	*YXN30046-011	Name plate		1
140	SBSB3008M	T. screw		2
141	*Y40273-003	Label		1
142	AP4056A-077	Envelope		1
143	*YDK30011-005	Inst. book		1
144	AP4056A-035	Envelope		1
145	T47736-00B	Head cleaning stick	H. cleaning	2
146	TLT000429-01	Caution label		1
147	G8395-1	EP adaptor		1
148	*Y40274-001	Label		1
	* Y40290-001	Ant. wire ass'y		1
149	TLZ270306-01	FM ant. ass'y		1

Cassette Location



Control Location

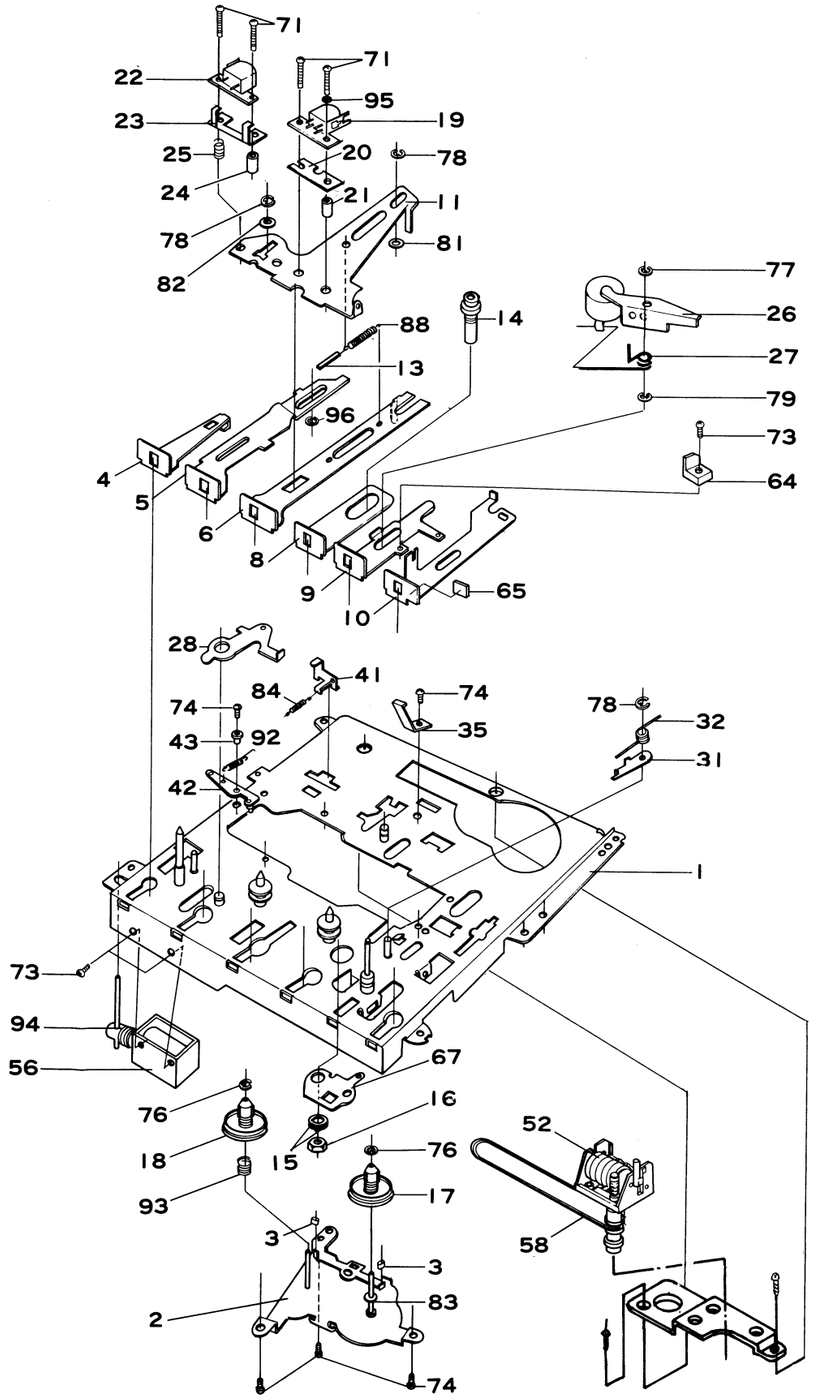


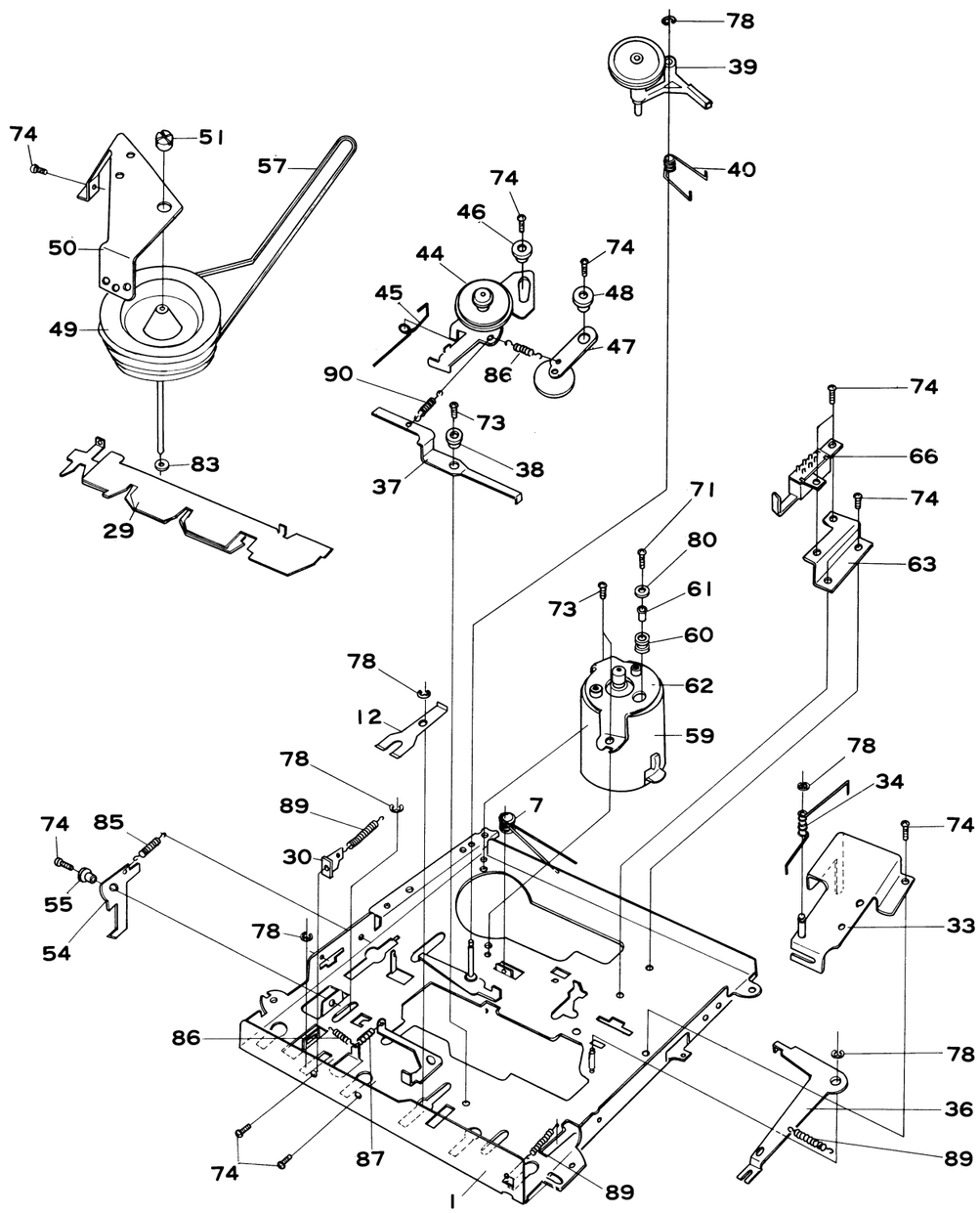
CASSETTE UNIT

Ref. No.	Parts No.	Parts Name	Remarks	Q'ty
	YOB10012-002	Cass. Panel		1
	TJP305451-01	Reflection Plate		1
	TJE294401-01	Counter Lens		1
	YWT40118-001	Fix. Plate		1
	SBSB3008Z	T. Screw		1
	YHJ40073-001	Lock Bracket		1
	SBSB3008Z	T. Screw		2
	YOP30025-001	Cass. Knob		4
	YOP30025-002	Cass. Knob	REC (Red)	1
	YOP30025-003	Cass. Knob	STOP (Blue)	1
	YGS40048-001	Knob Shaft		1
	YHP40049-001	Support Bracket		2
	SPSP3008NS	Screw		2
	Y40208-001	Spring	for Knob	4
	REE4000	E. Ring		1
	Y40126-001	Spring	for Knob	1
	YWA40132-002	Damper Arm Ass'y		1
	YGP40130-001	Pin		
	REE2000	E. Ring	for Door Brake Shaft, Pipe, Damper Arm	3
	YWB40129-001	Arm Guide		1
	SBSB3008Z	T. Screw		2
	YWS40131-001	Spring		1
	Y00024-001	Lamp	12V 150 mA	2
	QMG1121-003	Fuse Board Ass'y		2
	YHM30088-001	Meter Holder		1
	SBSB3008Z	T. Screw		4
	YXO40004-027	Spacer		1
		Scotch Tape	12 mm(W) x 150 mm(L)	2
	Y00026-001	Meter		2
	YXO40004-017	Spacer		1
	LPSP3004ZS	Screw	for Lamp	2
	YMV30059-005	Socket Ass'y	J201	1
				1
	LPSP3008NS	Screw	for Mecha.	4
	SBSB3008Z	T. Screw	"	2
	SBSB2608Z	T. Screw	"	1
	YWA40123-001	Record Arm		1
	YGB40124-001	Metal		2
	LPSP2605ZS	Screw		2
	YWS40125-001	Spring		2
	QEW41EA-476	E. Cap.	C380	1
	QML3030-033	Lug Strip Ass'y		1
	YOO40165-001	Push Knob		4
	YHO40122-001	SW Holder		1

Ref. No.	Parts No.	Parts Name	Remarks	Q'ty
	LPSP3004ZS	Screw		2
	SBSB3008Z	T. Screw		3
		Cement		1 set
	YON40166-001	Slide Knob		1
		Cement		1 set
	YHP40121-001	C.B. Holder		1
	LPSP2603Z	Screw	for C.B. Holder	5
	YHP40174-001	C.B. Holder	Cass. C.B.	1
	SBSB3008Z	T. Screw	C. Board	3
	TEP267490-03	Brake Shaft		1
	TEP267495-0B	Brake Pipe Ass'y		1
	TER267508-02	"O" Ring		1
		Floil	GB-TS1	1 set
	YXQ30106-001	Shield Board		1
	TJL000430-01	Head Plate		1
	SSSB3008Z	T. Screw	C. Board	1
	LPSP3004ZS	Screw		2
	SBSB3008Z	T. Screw		2
	SBSB3008Z	T. Screw		1
	10E1	Silicon Diode	Solenoid D320	1
	QCF11HP-103	Fixed Ceramic Cap.	C391, 392	2
	E03565-5B0	Socket Ass'y	J3	1
	52396	Terminal Lug		2
	Y40264-001	Asbest Sheet		1
	Y40287-001	Shield Cover		1
	Y40293-001	Shield Cover		1
	T30483-00D	Slide Switch	Muting	1
	SPSP2604Z	Screw		2
	YHJ40053-001	SW Bracket	Lead SW	1
	SPSP2604Z	Screw		2
	53492-01	Bushing		2
	T30302-063	Collar		2
	WNB2600	Washer		2
	LPSP2610Z	Screw		2
	QCF11HP-103	Fixed Ceramic Cap.	C400	1

Cassette Deck Mechanical Parts





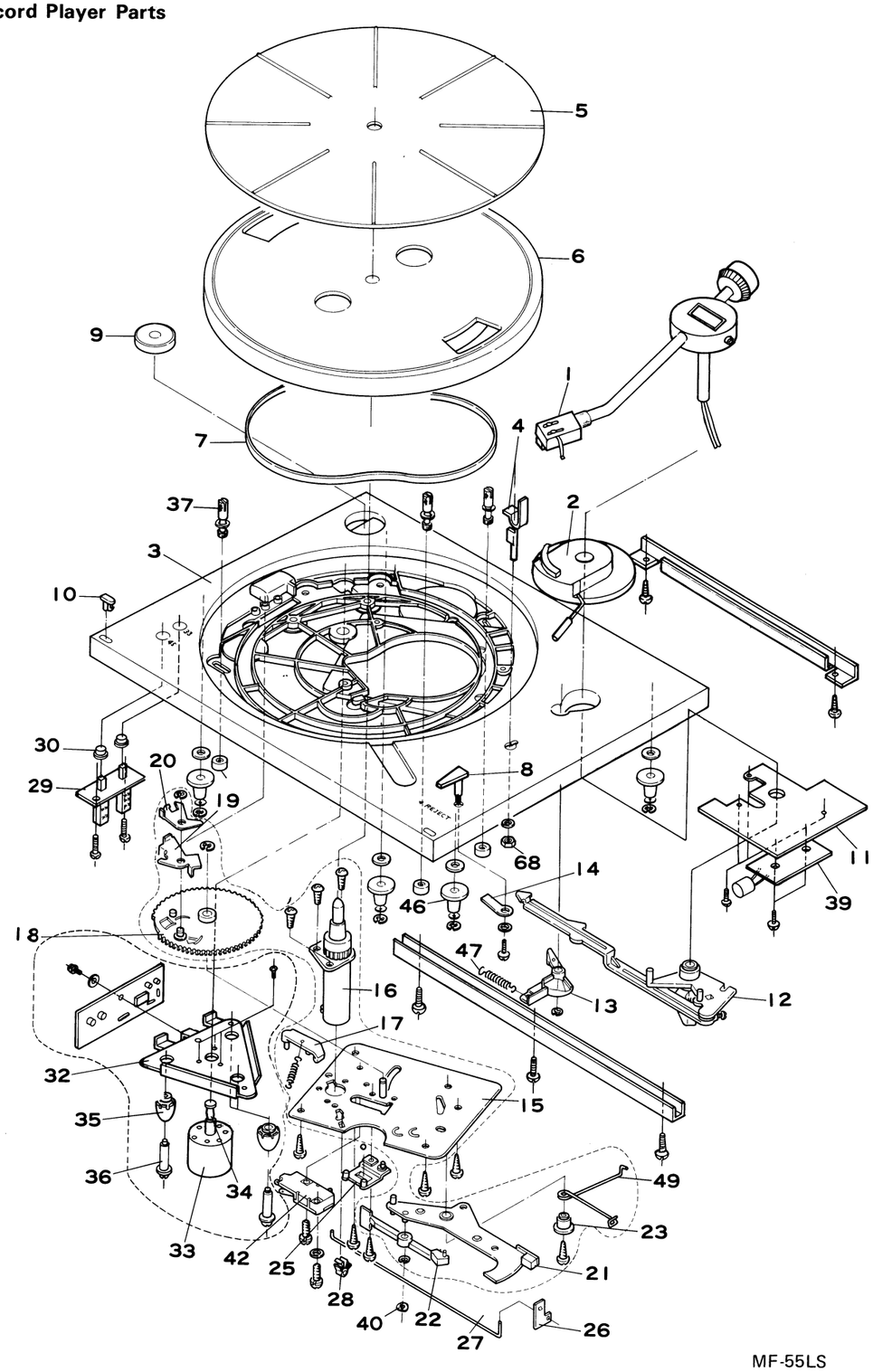
Parts marked with * are the new ones.

No.	Parts No.	Parts Name	Remarks	Q'ty
1	TGB294314-0B	Chassis base ass'y		1
2	TGB294436-0A	Reel disc bracket ass'y		1
3	TER265487-01	Brake rubber		2
4	TGB294441-0A	Rewind bar ass'y		1
5	TGB294443-0A	Record bar ass'y		1
6	TGB294445-0A	Play bar ass'y		1
7	TFW294447-01	Play bar spring		1
8	TGB284448-0A	FF bar ass'y		1
9	TGB294451-0A	Stop bar ass'y		1
10	TGB294454-0B	Pause bar ass'y		1
11	TGB294457-0A	Slide base ass'y		1
12	TFP294460-01	Spring plate		1
13	TJN265559-02	Sirencer		1
14	TGH294461-0A	Capstan metal ass'y		1
15	T47829-001	Washer		2
16	T47828-001	Nut		1
17	*TGP294462-0B	Takeup disc ass'y		1
18	*TGP294464-0D	Supply disc ass'y		1
19	THC000487-0A	Rec/PB head ass'y		1
20	TFP294513-01	Rec/PB head spring		1
21	T30302-066	Rec/PB head collar		1
22	THS265480-0A	Erase head ass'y		1
23	TFB294466-01	Wire clump		1
24	T30302-070	Erase head collar		1
25	T30301-115	Spring		1
26	TGB294537-0A	Pinch roller arm ass'y		1
27	TFW294483-01	Pinch roller spring		1
28	TFB294467-01	Recording lock lever		1
29	TGB294468-0A	Push button cam ass'y		1
30	TFB294470-01	Stopper		1
31	TFB294512-01	Select lever		1
32	TFW294471-01	Spring		1
33	TGB294472-0A	Switch bracket ass'y		1
34	TFW294475-01	Actuator		1
35	TFP294476-01	Spring plate		1
36	TFB294477-01	Brake lever		1
37	TFB294478-01	Review lever		1
38	T43909-001	Metal		1
39	TGP294479-0A	Takeup lever		1
40	TFW294482-01	Lever spring		1
41	TFB291414-01	Recording safety lever		1
42	TGB294484-0A	Recording lever ass'y		1
43	TFH294487-01	Metal		1
44	TGX294488-0A	FF arm ass'y		1
45	T47507-001	FF spring		1
46	TFH294492-01	Metal		1
47	TGX294490-0A	Rewind idler arm ass'y		1
48	TFH294491-01	Metal		1
49	TED294316-0A	Flywheel ass'y		1
50	TFB294493-01	Flywheel holder		1
51	TEP265498-01	Thrust washer		1
52	TGN294317-0A	Counter ass'y		1
53	TFB333401-01	Counter bracket		1
54	TFB294495-01	Lock lever		1
55	T43909-001	Metal		1

Parts marked with * are the new ones.

No.	Parts No.	Parts Name	Remarks	Q'ty
56	TDP294319-0A	DC solenoid ass'y		1
57	TEB294496-02	Capstan belt		1
58	TEB333402-01	Counter belt		1
59	*m1608-00A	Motor ass'y		1
60	53492	Rubber bushing		3
61	T30302-058	Collar		3
62	TFB294534-01	Motor bracket		1
63	TFB294500-01	Switch bracket		1
64	TEP294514-01	Cassette lever		1
65	TFG294521-01	Spacer		1
66	T30483-00D	Slide switch		1
67	TFB294522-01	Spacer		1
71	LPSP2608Z	Screw		2
72	SPSP2008Z	"		4
73	SPSP2605Z	"		6
74	SPSP2606Z	"		18
75	SSSP3005Z	"		2
76	REE1500	E-ring		2
77	REE2000	"		1
78	REE2500	"		8
79	REE4000	"		1
80	Q03091-151	Washer		3
81	Q03093-102	"		1
82	Q03093-430	"		1
83	Q03093-611	"		2
84	T30300-121	Spring		1
85	T30300-063	"		1
86	T30300-126	"		1
87	T30300-137	"		1
88	T30300-139	"		1
89	T30300-140	"		3
90	T30300-151	"		1
91	T30300-150	"		1
92	T30300-151	"		1
93	T30301-013	"		1
94	T30301-106	Spring		1
95	WLS2000	Lock washer		1
96	REE3000	E-ring		1

Record Player Parts



Parts marked with * are the new ones.

No.	Parts No.	Parts Name	Remarks	Q'ty
1	*MP-165S	Cartridge ass'y		1
2	*YAA30081-001	Elevator ass'y		1
3	*E10000-005	Motor board ass'y		1
4	YAQ40140-001	Arm rest ass'y		1
5	*E21859-002	Cover		1
6	E1971-002	Platter		1
7	G30005	Belt		1
8	*YOP40189-001	Knob ass'y		1
9	G8395-1	EP adaptor		1
10	*E60119-002	Lid cushion		2
11	Y40242-001	Shield bkt.		1
12	E33896-003	Arm lever ass'y		1
13	E49595-002	Elevator cam		1
14	*E60660-001	Reject lever		1
15	E34085-002	Base-sub		1
16	E33901-004	Spindle ass'y		1
17	E49623-002	Reject lever		1
18	E21656-001	Gear		1
19	E49626-001	Lower trip pawl		1
20	E49627-001	Engagement pawl		1
21	E49613-004	Return lever ass'y		1
22	E49657-001	Switch lever		1
23	E49607-001	Bushing		1
24	G41505	Stell ball		1
25	E49873-002	Ball holder		1
26	Y40206-001	Rod holder		1
27	E60128-001	Rod		1
28	E49679-001	Rod holder		1
29	YHO40139-001	Switch holder		1
30	YOO40138-001	Push knob		2
31	53492	Cushion rubber		3
32	*YHJ40137-001	Motor base		1
33	*MHX-5PZRDA	Motor ass'y		1
34	*YXE40102-00C	pulley ass'y		1
	*YXE40102-00D	"		1
35	E49631-003	Rubber bushing		3
36	E49633-001	Motor holder		3
37	*E60131-001	Mounting screw		3
38				
39	YCC-10-002	Plug ass'y		1
40	RDS3000Z	C. S ring		1
41				
42	QSM1V01-018	Micro-switch		1
43	E60141-003	Protect sheet		1
44				
45	E60132-002	Spacer		3

See page 38 (46～68)

Ref. No.	Parts No.	Parts Name	Remarks	Q'ty
46	E60130-001	Cushion		4
47	E49596-001	Spring		1
48	E49651-001	"		1
49	E60796-001	"		1
50	SBSB3008Z	Tapping screw		12
51	SBSB3010Z	"		7
52	SBSB3012Z	"		1
53	SPSP4012AS	Screw		2
54	LPSP3006ZS	"		2
55	LPSP3008ZS	"		1
56	LPSP3014ZS	"		2
57	Q03091-105	Washer		1
58	Q03091-110	"		2
59	Q03091-112	"		4
60	Q03091-138	"		1
61	Q03093-507	"		1
62	WBS3000N	"		2
63	WNS30008N	"		5
64	WLS3000Z	"		1
65	REE2000	E ring		5
66	REE3000	"		2
67	REE5000	"		2
68	NNZ3000ZS	Nut		1
	MPC-10	Cartridge		1
				1
				1
	HC-23	Stylus cover		1
	DT-33H	Stylus	included in PU ass'y	1

Packing List and Accessories List

Ref. No.	Parts No.	Parts Name	Description	Q'ty
1	YPA30082-111	P. Case Ass'y		1
2	T43758-003	Serial Ticket		2
3	YPG30053-003	Envelope		1
4	YPG30053-004	"		1
5	AP4056A-007	"		1
6	AP4056A-035	"		1
7	TLT000429-01	Caution Label		1
8	T47796-00B	Head Cleaning Stick		2
9	G8395-1	EP Adaptor		1
10	TLZ270306-01	FM Ant. Ass'y		1
11	Y40290-001	AM Ant. Ass'y		1
12	YDK30011-009	Inst. Book		1
13	Y40274-001	Lavel		1
14	DT-626	ANRS Tape		1

Characteristics of Transistors

2SD545

Simbol			Unit
Pc	(Ta=25°C)	500	mW
Cob	V_{CB}=10V, f=1MHz Typ.	15	PF

2SB511

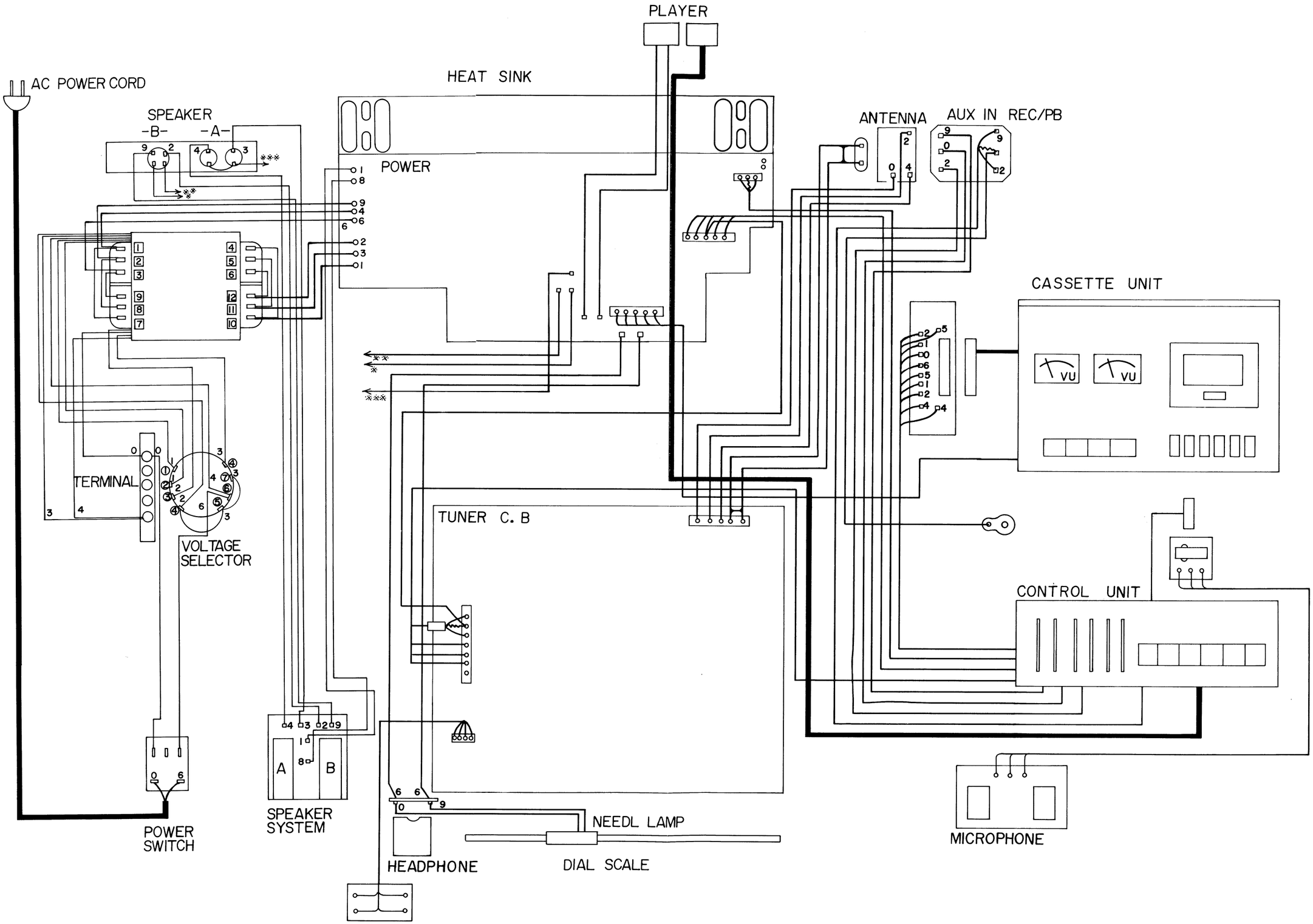
Simbol			Unit
Pc	(Tc=25°C)	10	W
	(Ta=25°C)	1.75	

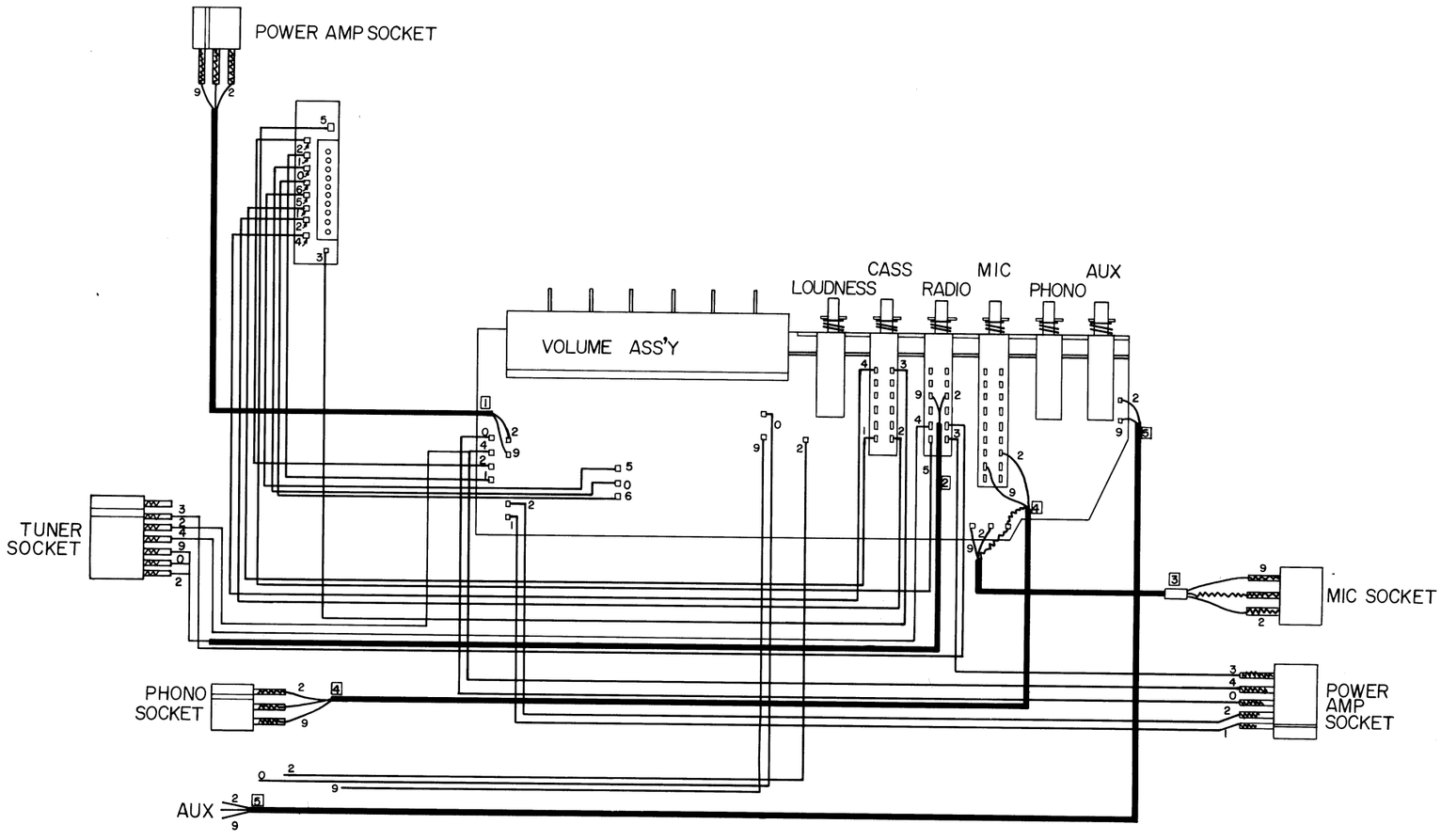
2SD325

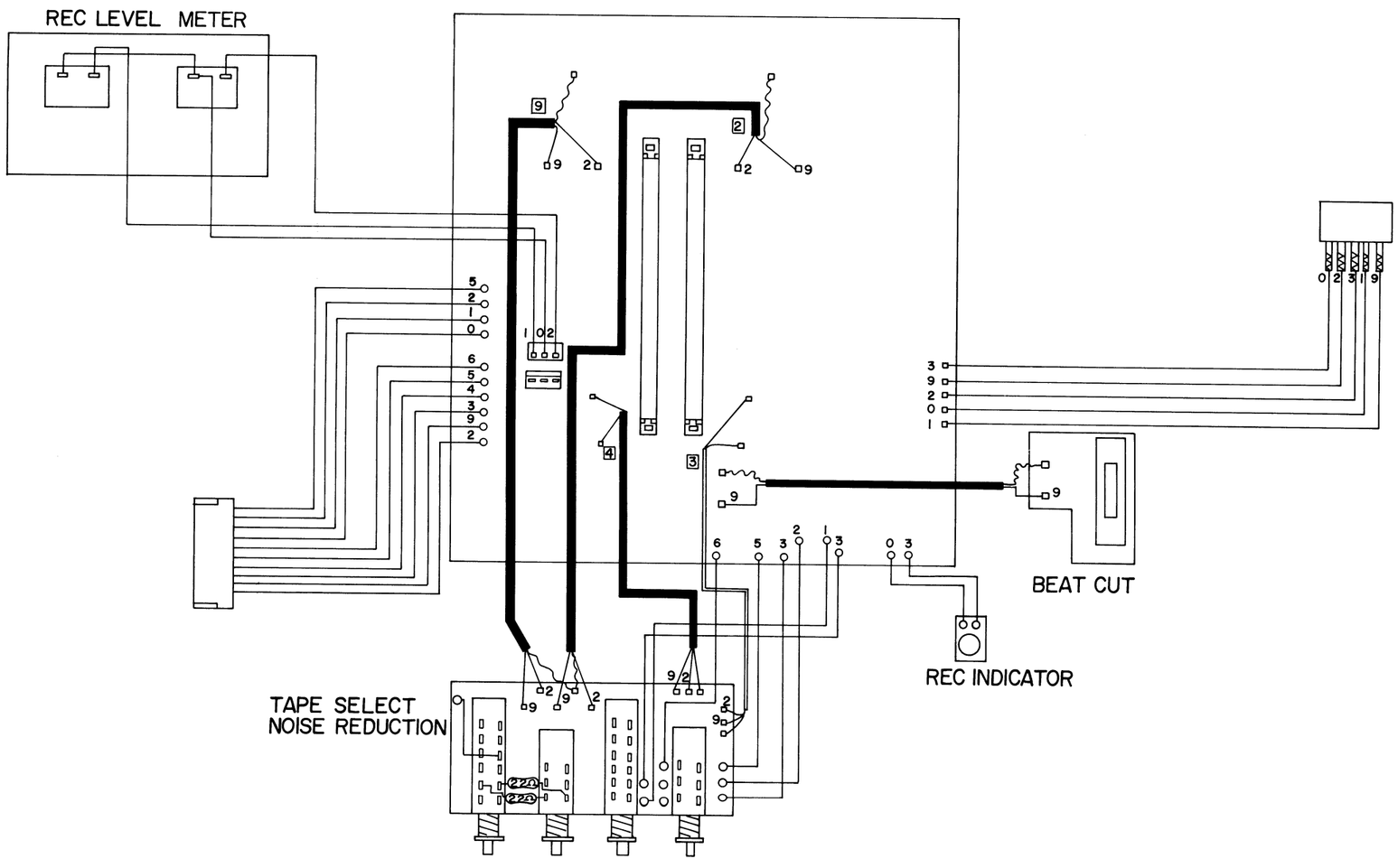
Simbol			Unit
Pc	(Tc=25°C)	10	W
	(Ta=25°C)	1.75	

Tc : With ideal heat sink
Ta : Circumstance temperature

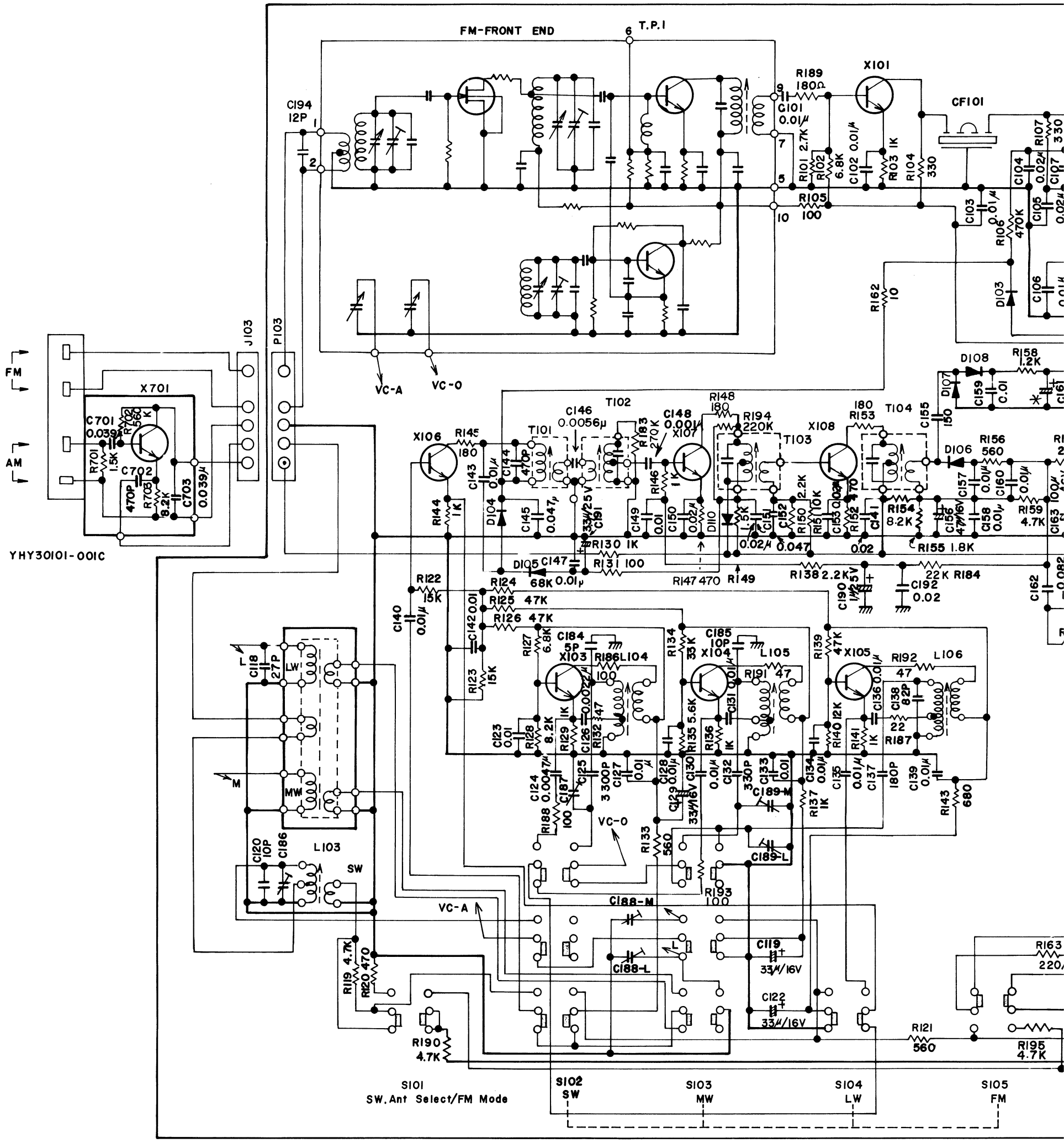
Wiring diagram




POWER AMP SOCKET
VOLUME ASS'Y
LOUDNESS
CASS
RADIO
MIC
PHONO
AUX
TUNER SOCKET
MIC SOCKET
PHONO SOCKET
POWER AMP SOCKET
AUX


REC LEVEL METER
BEAT CUT
REC INDICATOR
TAPE SELECT
NOISE REDUCTION

MF-55LS Schematic Diagram



SW No.	FUNCTION	POSITION	X No.	SEMICONDUCT.	IC No.	INT. CIRCUIT	VR No.	FUNCTION	D No.	SEMICONDUCT.
S101	SW. DX-LOCAL/MONO	DX/ST.	X701, 101	2SC710CD	IC101	HA1137W	VR180	FREE RUNNING FRQ	D101, 102	1S2473
S102	SHORT WAVE	FM	X103, 104	"	IC102	LA3350A	VR166	SEPARATION ADJ	D103, 109	"
S103	MEDIUM WAVE		X105, 106	"					D104~108	1S188FM
S104	LONG WAVE		X107, 108	"					D110	"
S105	FM								D501, 502	SR103D
S106	FM MUTING	OFF								

	X701	X101	X103	X104	X105	X106
B	4.7	2.9	3.6	1.2	1.6	1.2
C	9.5	9.3	6.0	9.0	9.0	9.4
E	4.1	2.1	3.0	0.6	1.0	0.6

INT : INTEGRATED
VR : VARIABLE RESISTOR
L.E.D : LIGHT-EMITTING DIODE
V.C : VARIABLE CAPACITOR
CF : CERAMIC FILTER

YHY20016-001

L101 T105 T106 X101 CF101 IC101 IC102 X108 T103 T104 X104 X105 L105 L106 L107 L108 L109 L110 D101 D102 D103 D106 D107 D108 D109 P101 P102 J102 YHY30101-001D

S103 MW
S104 LW
S105 FM
S106 FM-Muting

T.P.2

D501 Tuner
D502 FM Stereo Radar

L E R Meter (to Control Amp) 15V 12V E

	X701	X101	X103	X104	X105	X106	X107	X108	
B	4.7	2.9	3.6	1.2	1.6	1.2	1.4	1.9	V
C	9.5	9.3	6.0	9.0	9.0	9.4	7.6	9.6	V
E	4.1	2.1	3.0	0.6	1.0	0.6	0.8	1.1	V

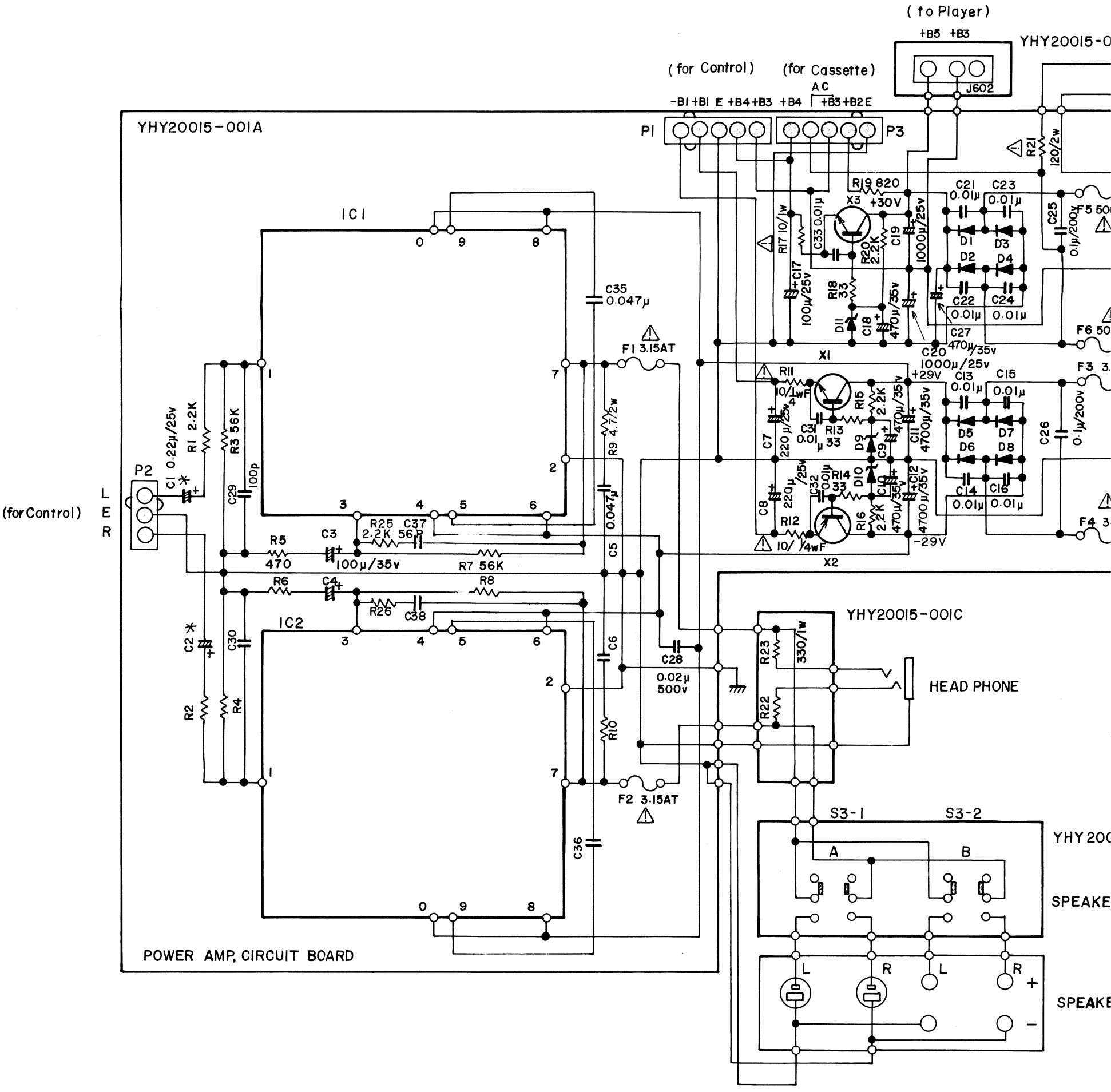
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
IC101	2.0	2.0	2.0	0	0	5.5	5.9	5.6	5.6	5.6	9.3	4.1	10	4.1	5.0	0	V
IC102	11.0	3.0	6.3	5.4	5.5	1.5	0	0.3	6.4	0	1.8	2.1	2.0	2.0	2.0	2.8	V

SEMICONDUCT
IS2473
〃
IS188FM
〃
SR103D

INT : INTEGRATED
VR : VARIABLE RESISTOR
L.E.D: LIGHT-EMITTING DIODE
V.C : VARIABLE CAPACITOR
CF : CERAMIC FILTER

W : RESISTER >1/8W
WF : FUSIBLE RESISTOR
⚠ : SAFETY PARTS
✱ : LOW LEAK ELECTROLYTIC CAPACITOR

MF-55LS Schematic Diagram

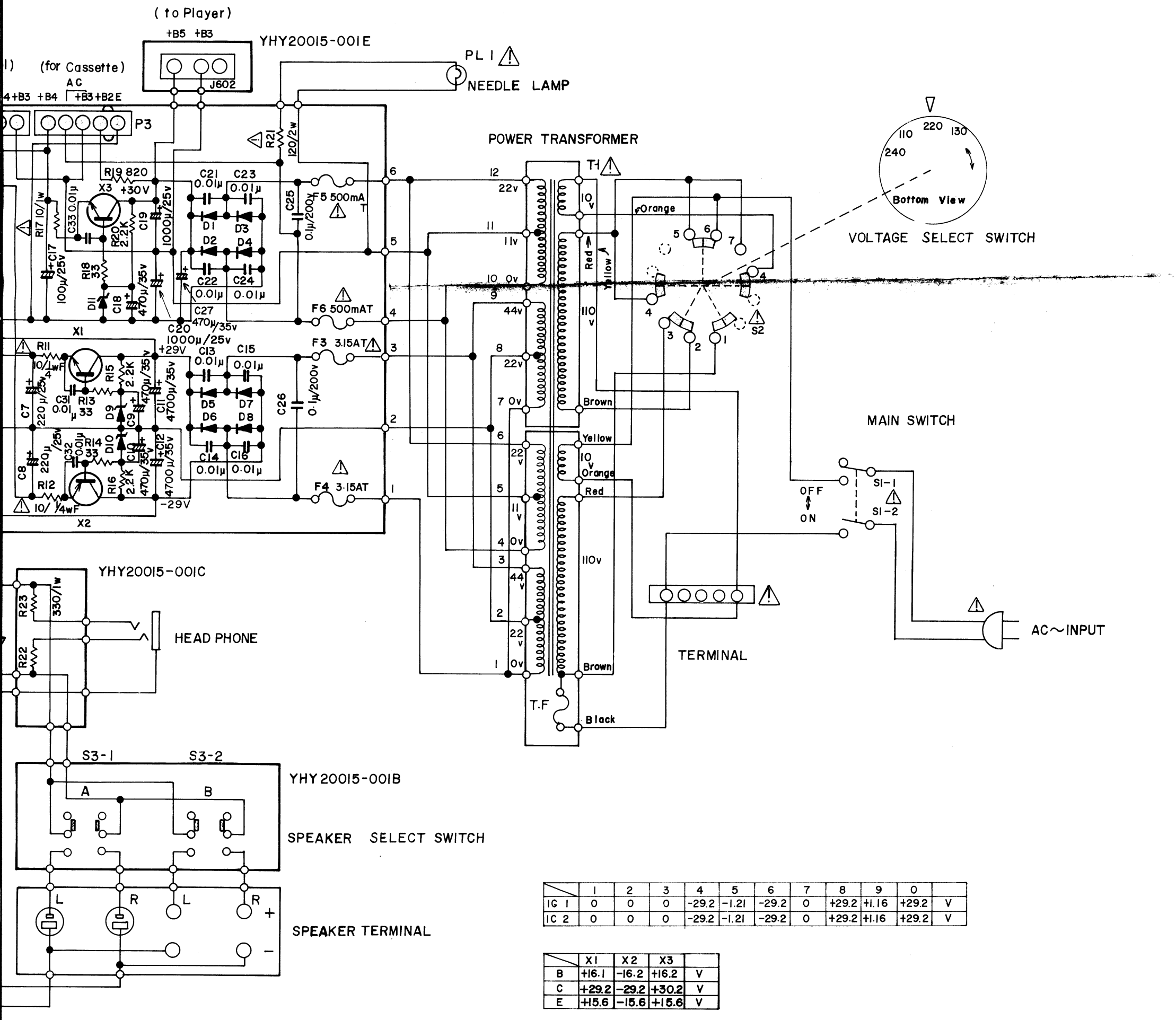


D No	SEMICON	SW. No	FUNCTION	POSITION	X No	SEMICONDUCTOR	IC No	INTEGRATED CIRCUIT
D1~4	10E1	S1	POWER SW.	OFF	X1.3	2SD325E	IC1.2	STK 058
D5~8	30D2-B	S2	VOLTAGE SELECT SW	220V	X2	2SB511E		
D9~11	WZ-157	S3	SPEAKER SELECT SW	OFF				

SW : SWITCH
F : FUSE

W : RESISTOR > 1/8
WF : FUSIBLE RESIST
✳ : LOW LEAK CURR
ELECTROLYTIC
⚠ : SAFETY PARTS

Transistors not il



	1	2	3	4	5	6	7	8	9	0	
IC 1	0	0	0	-29.2	-1.21	-29.2	0	+29.2	+1.16	+29.2	V
IC 2	0	0	0	-29.2	-1.21	-29.2	0	+29.2	+1.16	+29.2	V

	X1	X2	X3	
B	+16.1	-16.2	+16.2	V
C	+29.2	-29.2	+30.2	V
E	+15.6	-15.6	+15.6	V

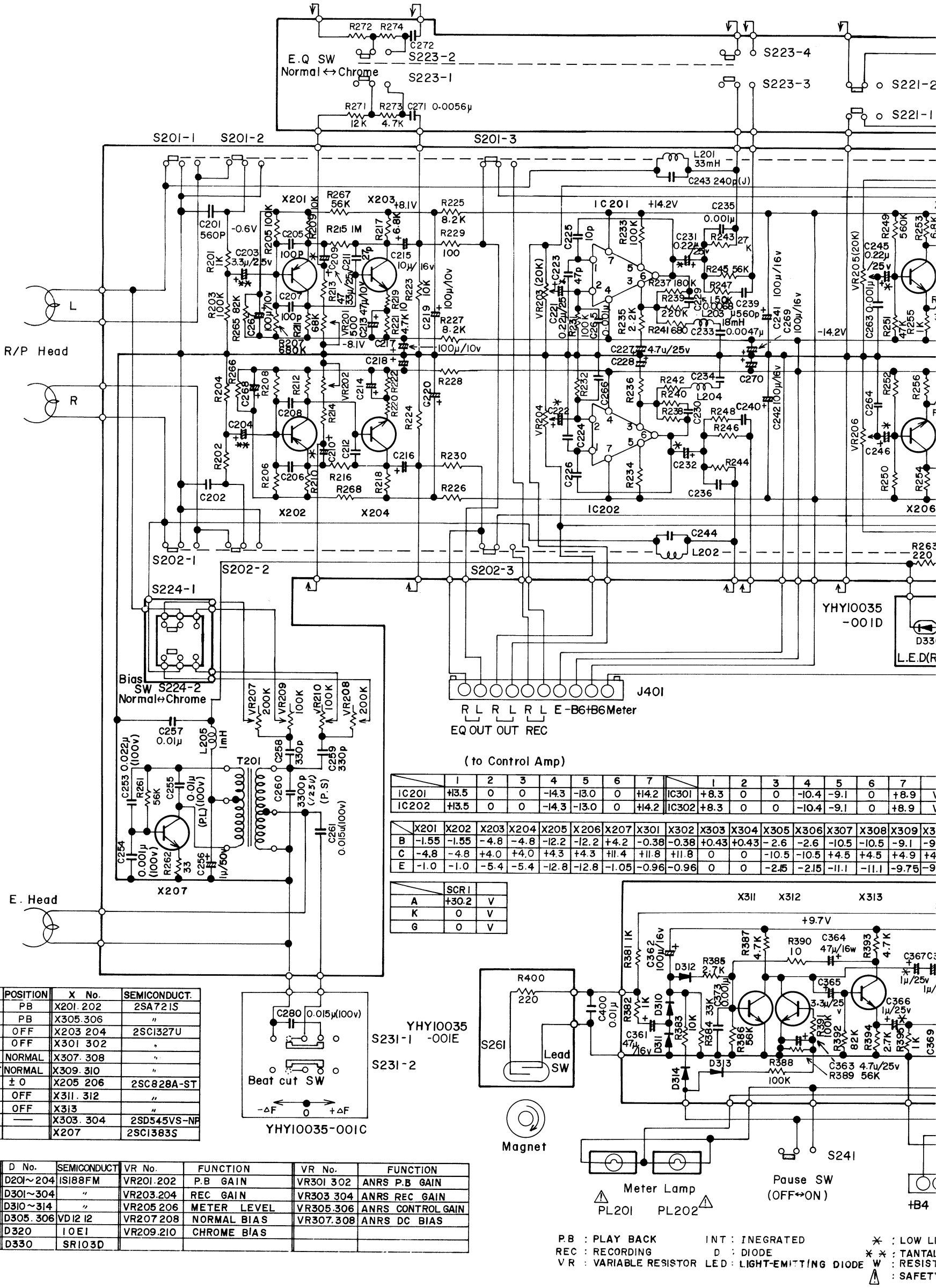
	+B1	-B1	+B2	+B3	+B4	+B5
V	+15.2	-15.2	+30.2	+15.0	+15.0	+30.2

SW : SWITCH
F : FUSE

W : RESISTOR > 1/8W
WF : FUSIBLE RESISTOR
⋇ : LOW LEAK CURRENT ELECTROLYTIC CAPACITOR
⚠ : SAFETY PARTS

Transistors not illustrated on this page are the same as 2SC1327 on page

MF-55LS Schematic Diagram



(to Control Amp)

	1	2	3	4	5	6	7		1	2	3	4	5	6	7	
IC201	+13.5	0	0	-14.3	-13.0	0	+14.2	IC301	+8.3	0	0	-10.4	-9.1	0	+8.9	V
IC202	+13.5	0	0	-14.3	-13.0	0	+14.2	IC302	+8.3	0	0	-10.4	-9.1	0	+8.9	V

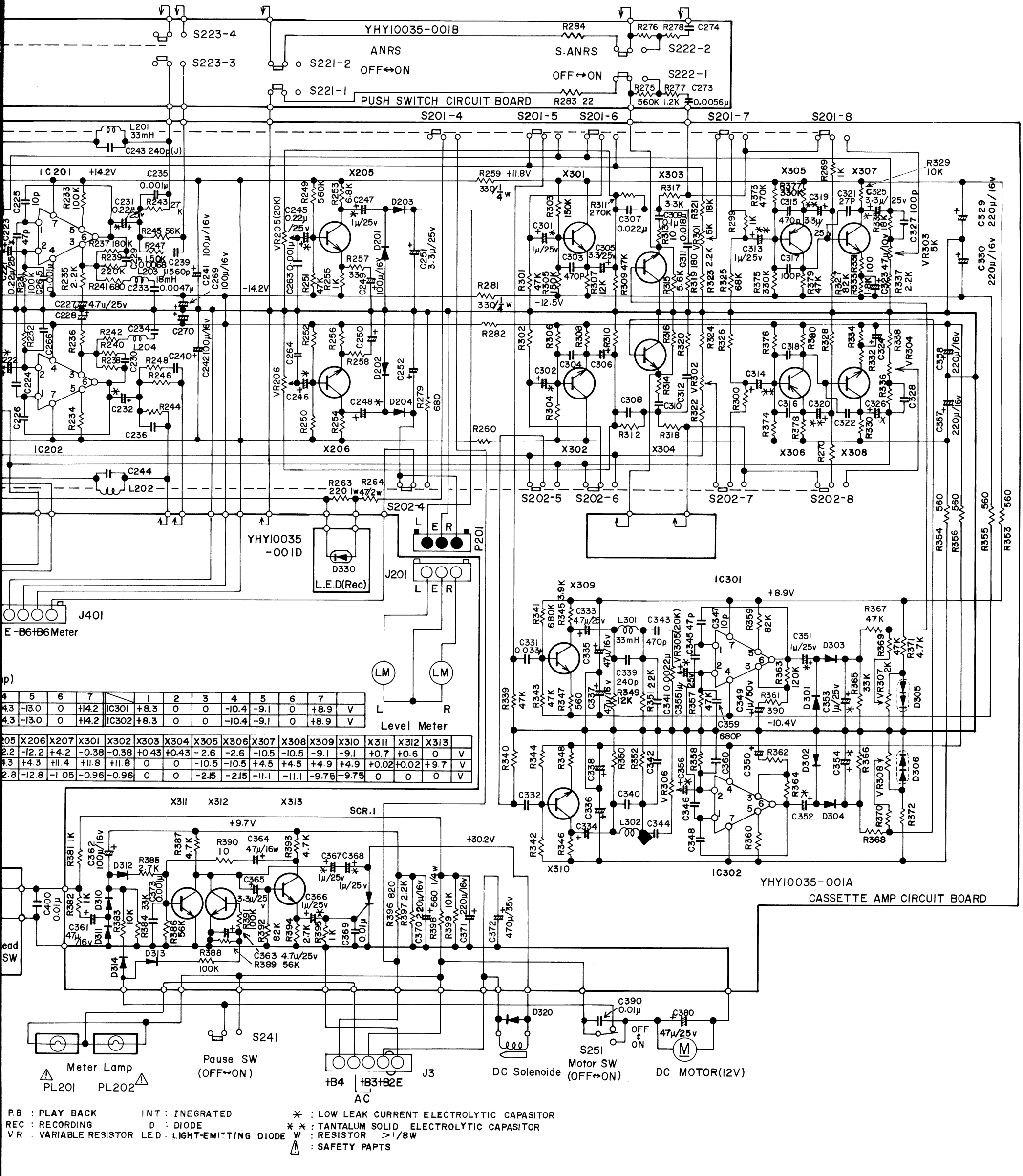
	X201	X202	X203	X204	X205	X206	X207	X301	X302	X303	X304	X305	X306	X307	X308	X309	X3
B	-1.55	-1.55	-4.8	-4.8	-12.2	-12.2	+4.2	-0.38	-0.38	+0.43	+0.43	-2.6	-2.6	-10.5	-10.5	-9.1	-9
C	-4.8	-4.8	+4.0	+4.0	+4.3	+4.3	+11.4	+11.8	+11.8	0	0	-10.5	-10.5	+4.5	+4.5	+4.9	+4
E	-1.0	-1.0	-5.4	-5.4	-12.8	-12.8	-1.05	-0.96	-0.96	0	0	-2.15	-2.15	-11.1	-11.1	-9.75	-9

	SCR1	
A	+30.2	V
K	0	V
G	0	V

SW No.	FUNCTION	POSITION	X No.	SEMICONDUCT.
S201	REC & PB	PB	X201. 202	2SA721S
S202	REC & PB	PB	X305. 306	〃
S221	ANRS	OFF	X203 204	2SC1327U
S222	ANRS SUPER	OFF	X301 302	〃
S223	EQ SELECT	NORMAL	X307. 308	〃
S224	BIAS SELECT	NORMAL	X309. 310	〃
S231	BEAT CUT	± 0	X205 206	2SC828A-ST
S241	PAUSE	OFF	X311. 312	〃
S251	MOTOR	OFF	X313	〃
S261	TAPE LEAD	——	X303. 304	2SD545VS-NP
			X207	2SC1383S

IC No.	INT CIRCUIT	D No.	SEMICONDUCT	VR No.	FUNCTION	VR No.	FUNCTION
IC201	TA7136P	D201~204	IS188FM	VR201.202	P.B GAIN	VR301 302	ANRS P.B GAIN
IC202	〃	D301~304	〃	VR203.204	REC GAIN	VR303 304	ANRS REC GAIN
IC301	〃	D310~314	〃	VR205 206	METER LEVEL	VR305.306	ANRS CONTROL GAIN
IC302	〃	D305. 306	VD12 12	VR207 208	NORMAL BIAS	VR307.308	ANRS DC BIAS
SCR No	SEMICONDUCT	D320	10E1	VR209.210	CHROME BIAS		
SCR1	2SF656	D330	SR103D				

P.B : PLAY BACK
REC : RECORDING
V R : VARIABLE RESISTOR
INT : INEGRATED
D : DIODE
LED : LIGHT-EMITTING DIODE
✳ : LOW LI
✳✳ : TANTAL
W : RESIST
⚠ : SAFET



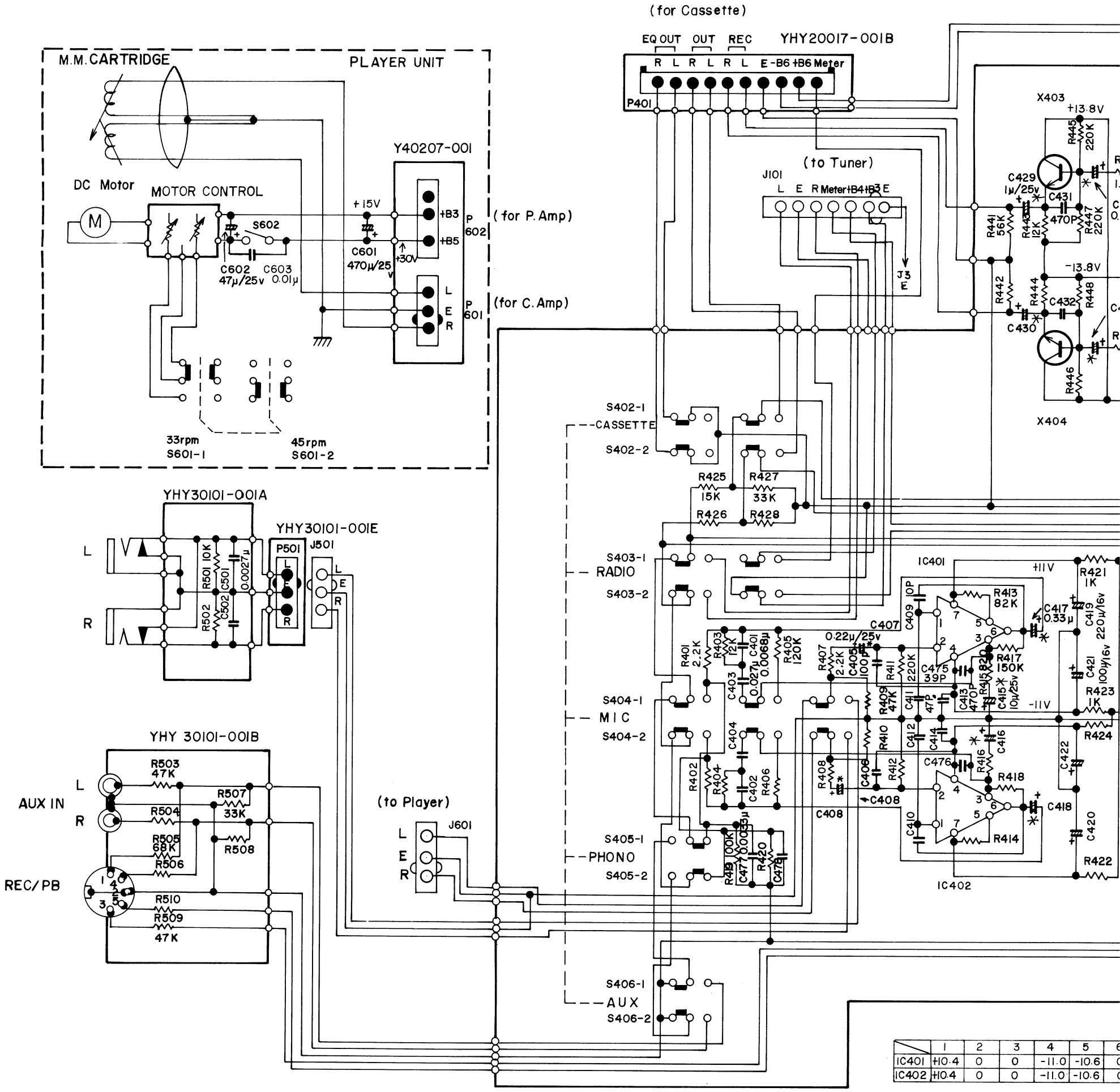
	1	2	3	4	5	6	7	
IC301	+8.3	0	0	-10.4	-9.1	0	+8.9	V
IC302	+8.3	0	0	-10.4	-9.1	0	+8.9	V

X205	X206	X207	X301	X302	X303	X304	X305	X306	X307	X308	X309	X310	X311	X312	X313	
2.2	-12.2	+4.2	-0.38	-0.38	+0.43	+0.43	-2.6	-2.6	-10.5	-10.5	-9.1	-9.1	+0.7	+0.6	0	V
4.3	+4.3	+11.4	+11.8	+11.8	0	0	-10.5	-10.5	+4.5	+4.5	+4.9	+4.9	+0.02	+0.02	+9.7	V
2.8	-12.8	-1.05	-0.96	-0.96	0	0	-2.15	-2.15	-11.1	-11.1	-9.75	-9.75	0	0	0	V

P.B : PLAY BACK
REC : RECORDING
V R : VARIABLE RESISTOR
INT : INEGRATED
D : DIODE
LED : LIGHT-EMITTING DIODE

✳ : LOW LEAK CURRENT ELECTROLYTIC CAPASITOR
✳✳ : TANTALUM SOLID ELECTROLYTIC CAPASITOR
W : RESISTOR >1/8W
⚠ : SAFETY PAPTS

MF-55LS Schematic Diagram

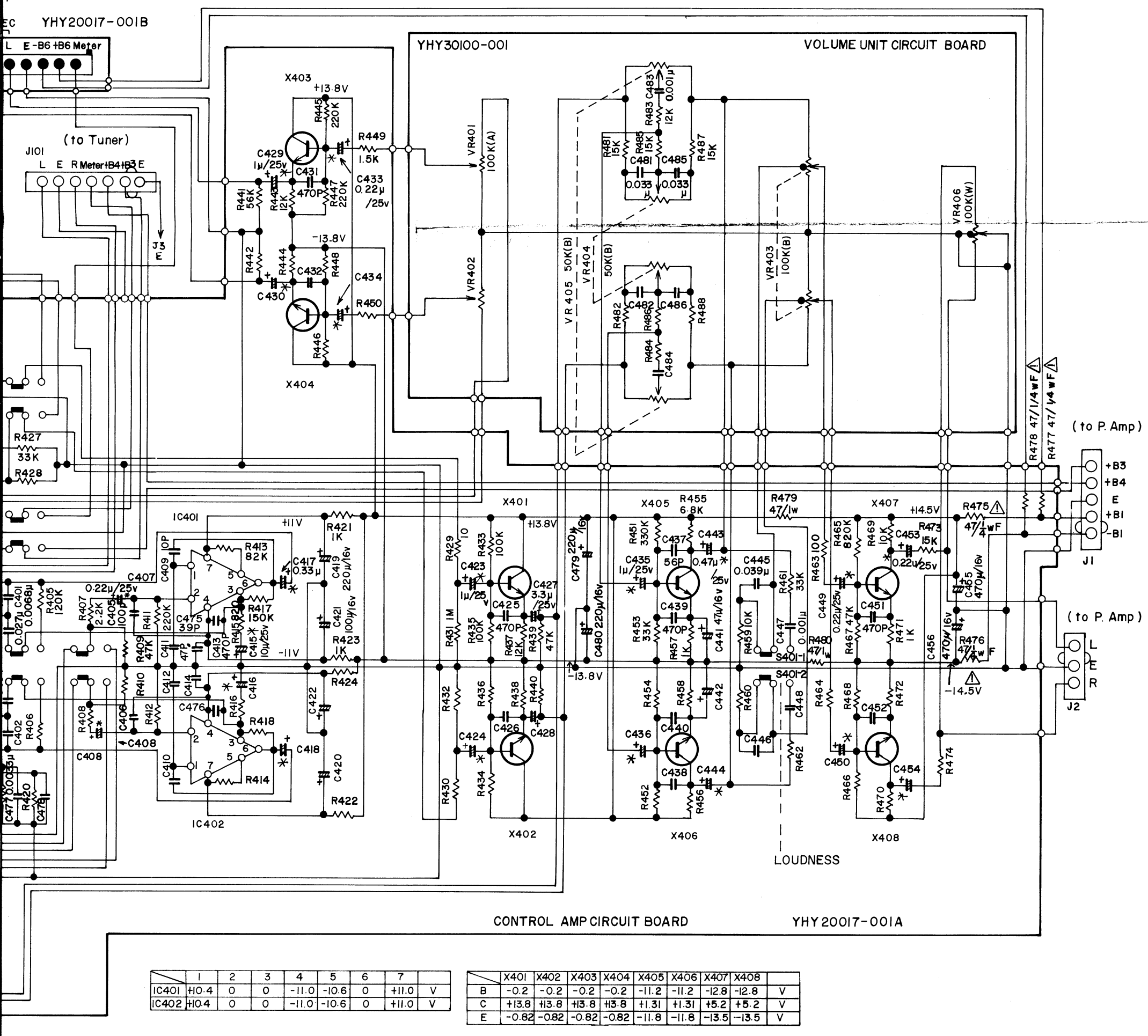


	1	2	3	4	5	6
IC401	+10.4	0	0	-11.0	-10.6	0
IC402	+10.4	0	0	-11.0	-10.6	0

SW No.	FUNCTION	POSITION	VOL No.	FUNCTION	TR. No.	SEMICONDUCTOR
S401	LOUDNESS	OFF	VR401.402	CASS.RECORD	X401~408	2SC1327U
S402	CASSETTE		VR403	MAIN	IC401.402	TA7136P(I.C)
S403	RADIO		VR404	TREBLE		
S404	MIC		VR405	BASS		
S405	PHONO		VR406	BALANCE		
S406	AUX		VR601	33rpm SPEED		
S601	T.T. SPEED	33rpm	VR602	45rpm SPEED		
S602	MORTOR	OFF				

T.T. : TURN TABLE
M.M. : MOVING MAGNET
VOL : VOLUME
CASS: CASSETTE
V.R : VARIABLE RESISTOR
SW. : SWITCH
I.C : INTEGRATED CIRCUIT
TR : TRANSISTOR

* : LOW LEAK CURRENT ELECTROLYTIC CAPACITOR
W : RESISTOR >1/8W
F : FUSIBLE RESISTOR
⚠ : SAFETY PARTS



CONTROL AMP CIRCUIT BOARD YHY 20017-001A

LOUDNESS

	1	2	3	4	5	6	7	
IC401	+10.4	0	0	-11.0	-10.6	0	+11.0	V
IC402	+10.4	0	0	-11.0	-10.6	0	+11.0	V

	X401	X402	X403	X404	X405	X406	X407	X408	
B	-0.2	-0.2	-0.2	-0.2	-11.2	-11.2	-12.8	-12.8	V
C	+13.8	+13.8	+13.8	+13.8	+1.31	+1.31	+5.2	+5.2	V
E	-0.82	-0.82	-0.82	-0.82	-11.8	-11.8	-13.5	-13.5	V

* : LOW LEAK CURRENT ELECTROLYTIC CAPACITOR
W : RESISTOR >1/8W
F : FUSIBLE RESISTOR
⚠ : SAFETY PARTS

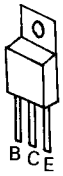
Lead SW

2SC828A-ST

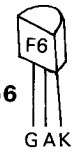
2SC710

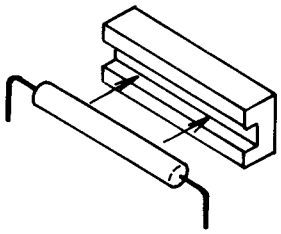
X501–506
2SC1327U

2SD325E
2SB511E



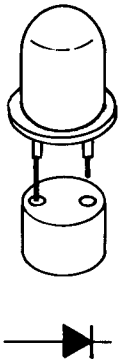
SCR
2SF656



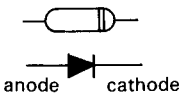


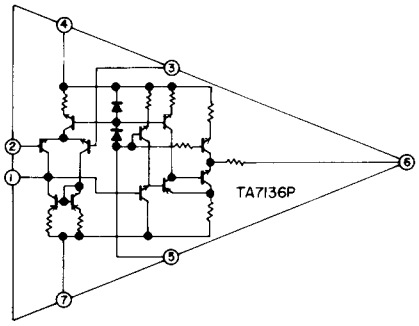
SR103D

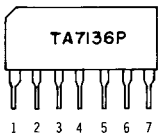
L.E.D

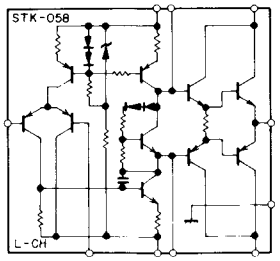


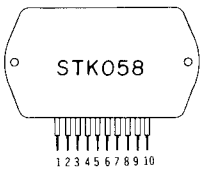
Diode

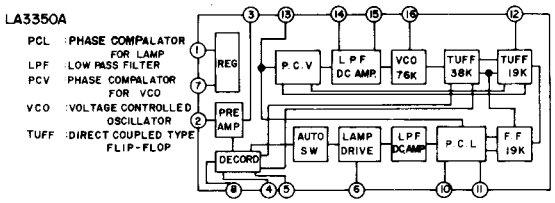


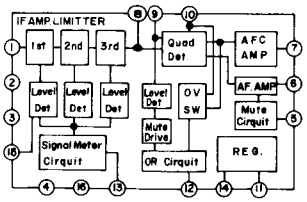






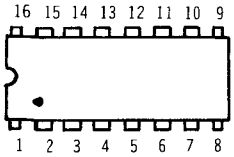






HA1137W
Quad. Det.: QUADRATURE DETECTOR

VD1212 **Varistor**



IC102 **IC101**
LA3350 **HA1137W**